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ABSTRACT

A study conducted to determine the occupational choices and employment opportunities for high school students was divided into two phases. The first phase consisted of an analysis of the availability of jobs in the Philadelphia (Pennsylvania) area. In the second phase of the study, a ccmparison was made of the aspirations of eleventh-grade students with employment opportunities for 1985. In the first year, a student needs questicnnaire was administered to 1,070 eighth- and ninth-grade pupils frcm the Philadelphia school system. In the second year, the revised questionnaire was administered to 1,293 tenth- and eleventh-grade pupils from all but two of the Philadelphia public school system high schools. The comparison revealed that there is a disparity between the plans and the probable capabilities of these students. Forty-three percent of eleventh-grade students would like professional or technical careers, while only 15 percent of the jobs in 1985 will be in those occupations. Only 7 percent of the students aspire to employment as sales or service workers, and 20 percent of the jobs expected to be available in 1985 are of this type. (Author/BM)

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FINAL REPORT

OCCUPATIONAL CHOICES AND EMPLOYMENT OPPORTUNITIES FOR HIGH SCHOOL STUDENTS (DECISION MODEL FOR VOCATIONAL EDUCATION)

(PROJECT NO. 83-9001)

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Abstract

This report is divided into two parts. Each part reflects a different focus, employing divergent methodologies and different presentation formats. The first part of the study is an analysis of the availability of jobs in the Philadelphia area. This section is based on the manpower analysis included as Part A of Decision Model for Vocational Education which was prepared by the authors of this report and submitted on October 31, 1977 to the Pennsylvania Department of Education, Bureau of Vocational Education, Research Coordinating Unit.* The information is presented in a format that can readily be used and interpreted by school guidance counselors and career planning personnel. The second part of this report is an extension and improvement of Part B of the document cited above. Several additional topics are covered, and the data are based on two additional years of the students' needs survey; i.e., we interviewed tenth and eleventh grade students, and this report includes an analysis of their responses as well as those of students in the eighth and ninth grade.

The first chapter of the second section builds on the information developed in the first section. That is, after determining the relative availability of jobs in different occupations, we compare the aspirations of the students with the reality of the labor market.

Chapter II utilizes multiple regression analyses to determine the social background influences on educational and occupational plans. Further, the determinants of knowledge of the world of work are explored as well as the influences of that knowledge on aspirations and expectations. Lastly, Chapter II presents data on the impact of a variety of work-related values on the students' career choices.

Chapter III compares the students enrolled in vocational-technical programs with students in all other programs of the Philadelphia public school system. Similarities and differences of background, of occupational and educational plans, of perception of guidance personnel and of type of work motivation are presented.

Chapter IV examines the knowledge of the world of work battery in relation to the sources of knowledge used or sought by students. A few of the tables in this chapter presented in a bivariate fashion, recapitulate some of the findings seen in the multivariate analysis of Chapter II. (This is provided especially for those who are not familiar with the interpretation of multiple regression analyses.) An appendix to Chapter IV presents data on the perception of guidance counselors' help in job selection among eighth through eleventh grade students.

A summary and discussion of the study comprises Chapter V.

In the first year, the student needs questionnaire was administered to 1070 eighth and ninth grade pupils from the Philadelphia school system. In the second year the revised questionnaire (discussed below) was administered to 1293 tenth and eleventh grade pupils from all but two of the Philadelphia public school system high schools. Analysis of both samples' demographic characteristics indicates that the sampling

design produced a remarkably representative selection* Copies of the interview schedules are appended to this report. As can be seen, a variety of question formats were used to ascertain the students' perceptions, beliefs, knowledge and orientations about work.

A comparison of the aspirations of eleventh grade students with employment opportunities projected for 1985 clearly reveals the disparity between the plans and the probable capabilities of these students. Forty-three percent of eleventh grade students would like professional or technical careers, while only 15 percent of the jobs in 1985 will be in those occupations. Conversely, only seven percent of the students aspire to employment as sales or service workers, while 20 percent of the jobs are in those fields. Furthermore, only four percent of the students want to work as operatives or laborers while another 20 percent of the jobs expected to be available in 1985 are of this type. The proportions of students aspiring to jobs in managerial, craft and clerical occupations are more closely aligned with projected job openings. Occupational expectations, while skewed more heavily toward the less prestigious occupations than occupational aspirations, are nevertheless also much higher than anticipated employment opportunities.

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*For the first wave, the sample is 37% white, 57.2% black, 3.2% Spanish surname, 0.7% American Indian, 0.8% oriental, and 1.0% who chose to list themselves as "other." The percentages of males and females are 46.3% and 53.7% respectively. For the second wave, the sample characteristics are: 33% white, 61% black, 2.3% Spanish surname, 0.2% American Indian, 0.5% oriental, and 1.2% "other." 43.2% of this second wave sample are males; 56.8% are females. These figures correspond closely with the system's population for these grades.

The fact that secondary school students aspire, in large numbers, to high status, remunerative careers is reflected in the associated educational requirements. We found that 38 percent of the students aspire to jobs that require a bachelors degree or higher while only 19 percent desire jobs requiring no more than a high school diploma. Moreover, 54 percent of the younger students and 42 percent of the older students expect to earn a bachelors degree. At the same time, only 15 percent of average annual job openings expected in the Philadelphia area between 1974 and 1985 are in occupations requiring at least a bachelors degree while 50 percent of the jobs require no more than a high school diploma.

Ideally, schooling is supposed to be structured so that it simultaneously facilitates individual achievement and meets the manpower needs of the community. But as the comparison of student aspirations and employment opportunities presented in Chapter One graphically illustrates, these twin missions of public education are likely to be mutually antagonistic.

It is clear, of course, that the educational system cannot influence the distribution of jobs available. Nevertheless, it has both the opportunity and the obligation to provide students with accurate information about occupations and employment prospects, and to play a role in the formation of students' career and educational plans. Students' aspirations differ systematically with race, sex and socioeconomic background. But these, we found, are not the only

influences on students' plans. Students with differing familiarity with the world of work also have significantly different career plans. Moreover, we found that school programs and personnel are an important source of this kind of knowledge for young people.

In Chapters Two through Four of this document we examined the various influences on occupational and educational plans with particular emphasis on the role of students' knowledge of the world of work and perceived effectiveness of vocational guidance programs in the schools. One chapter (Chapter Three) compares characteristics, perceptions and desires of students enrolled in vocational technical programs with students in all other programs. Those involved in counseling or guidance, in planning programs and facilities, and in career education -- as well as those involved in the transition from school to work -- should find these data especially helpful.

In an analysis of the determinants of students' scores on the Knowledge of the World of Work battery we found the rather predictable positive relation between parental status and students' scores. However, when we looked at the role of knowledge of the world of work scores in affecting educational and occupational plans the results were somewhat unexpected. Even when we controlled for social background, the knowledge of the world of work score significantly and positively influenced educational aspirations, educational expectations, occupational aspirations and occupational expectations. These findings, further, have immediate policy

implications; students can be taught more about the labor markets, the tasks performed by differing types of workers, and the educational requirements of occupations. Moreover, the results of such an endeavor are promising given our findings on the universality of the effect. That is, the influence of knowledge of the world of work was positive and significant even when controlling for background.

We also explored the extent to which work-related values are associated with educational and occupational plans. In general, we found that students' attitudes and values appear to influence educational plans more than they influence occupational plans. We suggested that this was reasonable in light of the closer temporal relationship. Students, after all, are more concerned about those events in the immediate rather than distant future. For most, it is continuing education that demands their attention. The policy implications of this finding, however, should not be trivialized. It is the responsibility of the school system to present the interplay of career and educational plans to the students. The teachers, counselors and vocational guidance personnel are obviously more aware of the larger and interdependent reality than are the students. Further, the same programs that attempt to enhance the students' familiarity with the work world could easily incorporate discussions of work-education relationships.

We have found that students' expectations of what jobs they will hold are influenced by the socioeconomic position of their parents. This relationship exists even when controlling for students'

race, sex, grade and several occupationally-related values. By contrast, there is far less of a relationship between parental socioeconomic status and the students' occupational aspirations. We suggest, further, that the fact that parental status influences occupational expectations but fails to influence occupational aspirations reflects the dichotomy between the ideology of an open meritocracy and the reality-grounded expectations of social and economic limitations to success. That is, students from all levels of society aspire to prestigious jobs, but more students from high socioeconomic position expect to hold prestigious jobs. In Chapter Three, we examined the differences and similarities between those enrolled in vocational-technical programs and those enrolled in the other programs of the Philadelphia School system. We found that the programs' enrollments were remarkably similar in their proportions of each racial group. On the other hand, socioeconomic background dramatically influences the enrollment distribution of students in vocational-technical versus all other programs. Those from lower social status families are more likely to be pursuing vocational-technical degrees than those of more prestigious families.

Vocational-technical students are as knowledgeable about the world of work as those in the traditional curricula. Further, vocational-technical students were more likely to seek career or educational advice from what we would regard as better informed sources of occupational information (e.g., teachers, counselors, school programs) than the students in the conventional programs.

This purposefulness of vocational-technical students was also seen in the influences on school selection, where the more directed and deliberate nature of their choices was obvious.

In a general analysis of the students' occupational selection process and the role of knowledge of the world of work (Chapter Four), school programs and guidance personnel emerged as an important source of information for students. School programs and personnel were somewhat more important sources for females than for males and dramatically more important for black students than for white. For all students, knowing someone who has a particular job, seeing someone do a particular job, and having parents talk about an occupation are the most frequently cited sources of career selection. Although, among those from more educated parents, "personal contact" is more likely to be a significant factor than among the children of the less educated.

Students' responses to a question about the most helpful source of career information, and to a directed question on school counselors as helpful sources, strongly indicates a very positive perception of school counselors. "School counselors" was the modal response to the general question and were regarded as "helpful" by 72% of the sample in the directed question.

The knowledge of the world of work data show the students' deep ignorance of labor market activity. Comparisons among students of differing social or racial characteristics indicates mainly the

departures from the overall poor battery scores. In general most students got about half the questions wrong. Males did somewhat better than females, students in the higher grades did somewhat better than those in the lower grades. White students, on average, were considerably more knowledgeable than black students about the world of work, and those from families with fathers in more prestigious jobs tended to score better than those from lower status families.

Lastly, we examined the relationship between social status and the number of students who had personal meetings with guidance counselors. The findings are heartening in that those who are probably most in need of such meetings are the most likely to have participated in them. That is, a higher proportion from those of modest social standing met with guidance counselors than did those from more affluent backgrounds.

Policies toward vocational education and indeed toward all forms of schooling must be examined in the gray areas: between helping the student make a living and involving him in an educational con game with no job to reward his or her efforts; between preparing the student for active citizenship and setting him up for disillusion and alienation; between providing an appreciation of rich and diverse cultures and certification for jobs in a highly technical world.

Acknowledgements

This study, which was undertaken at the request of the Office of Career Education and Planning, School District of Philadelphia, could not have been conceived or carried out without the help and support of a number of individuals at several agencies. The needs of the School District were ably represented by Mr. Stanley B. Cohen, Director of Education and Planning and by Mr. George Hatten of Mr. Cohen's office. Of particular importance was the understanding of the role that the National Longitudinal Survey was to play in providing background for questionnaire design and the basis for the comparison of results of the Students' Needs Survey part of the study. Dr. Hermine Chern, associate in charge of the Career Education Evaluation Unit, gave unstintingly of her understanding and support, particularly in enabling the study group to overcome various problems. Mrs. Edie Kemp and Ms. Yvonne Bryant were particularly helpful in supplying additional data on the survey population. A special word of appreciation is due Mr. Albert I. Glassman, Executive Director of Career Education, who opened doors in the high schools, arranged contacts where needed to obtain additional information, and arranged to communicate the results of the study to a wider audience. Without his unstinting support this study could not have been completed. The support of the high school principals and classroom teachers in conducting the survey

was absolutely essential. We thank them for their kind permission to talk to their students.

Inasmuch as the unique contribution of the present study was to design a survey of students' needs, with the conception that the design should bear a relationship to the National Longitudinal Survey, it was necessary to bring Dr. Eileen Appelbaum, Assistant Professor of Economics, into the Temple University study group. Dr. Appelbaum had just completed a study of the cohort of young women for the U.S. Department of Labor, based on data from the National Longitudinal Survey, and was thus eminently qualified to develop this part of the study. Mr. Ross Koppel of the Department of Sociology, Dr. Appelbaum's coworker, brought his knowledge of occupational behavior to bear and guided Mr. Moses Williams during the first year and Ms. Jan Schlichting during the final year in preparing the data for the computer analysis. Mr. Koppel also greatly enhanced the understanding of the principle investigators because of his expertise in the Sociology of Occupations.

Dr. Paul Rappoport, Assistant Professor of Economics, served as the econometrician during the first year of the study. He provided invaluable service in developing an understanding of the industrial and occupational trends underlying the occupational forecasts kindly furnished by the Pennsylvania Department of Labor and Industry. In this he was ably assisted by Mr. O. Ugoji, our graduate assistant. Dr. Rappoport also provided the impetus for the development of

the preliminary decision model, which was an important element during the first year of the study.

During the second year, the focus became one of applying econometric analysis to the results of the whole study. In this task, we were ably assisted by Mr. John DelRoccilli, our graduate assistant, who also contributed greatly to Chapter Two of the final study report.

The Research Coordinating Unit, Department of Education, Harrisburg, Pennsylvania, supported this project. We wish to thank Dr. Dietenhafer and Mr. James Lewis for their help.

Louis T. Harms
Temple University
23 July 1979

PART A

Philadelphia Area Job Prospects to 1985

This section of the final report presents a list of 159 occupations identified as having a significant number of openings per year available in the Philadelphia area to 1985. The occupations are grouped according to some common attributes such as related workplaces, but differing as to education, skills or training. A brief comment on the probable job situation is provided for each occupation. Users of this information should make sure that the jobs they seek will be in firms or industries that have some prospects of continuing to remain in existence. Since this is difficult, if not impossible, to forecast, occupations should be selected with care, so that changes in jobs can be made from one firm to another with a minimum loss of applicable education or training. For example, typists or welders will find their skills in demand in a wide variety of firms or industries, but persons preparing themselves to become plasterers, bookbinders or weavers will find difficulty in practicing their skills because of the disappearance of jobs.

Each comment will contain references to the future prospects of jobs in the occupation based on employment trends, probable openings, and estimated supply of workers. The basic information and description of the data upon which these comments are based may be found

in Decision Model for Vocational Education (the report prepared at the end of the first year of this study) which is available from the Office of Career Development.

Five statistics are given for each occupation.

(a) the number of persons employed in an occupation in 1974, (which is the base for measuring the growth in 1985).

(b) the change in employment in an occupation to 1985 in percent.

(c) the average annual job openings to 1985. This figure is the sum of the growth in employment plus the number of jobs opening up in an occupation because of death or retirement or workers holding those jobs. Thus occupations with slow or declining growth might still have a substantial number of jobs available.

(d) the average number of workers available for the existing jobs in each year in an occupation. This figure is a rough estimate of the labor force supply to 1985.

(e) the average annual number of workers per job. This figure is a rough measure of the estimated number of workers competing for a single job opening on the average. A high number indicates intense competition for jobs; a number fairly close to '1' indicates

rough balance between the number of jobs and the number of workers seeking work in an occupation. A decimal number indicates the possibility of a shortage of workers. It should be noted that these figures are forecasts based upon assumed trends in the past historical period.

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	WORKERS PER JOB
INDUSTRIAL PRODUCTION AND RELATED OCCUPATIONS					
FOUNDARY OCCUPATIONS					
Patternmakers	1259	-11.9	19	133	7
	Employment expected to decline. Strong competition for few jobs. Use of metal patterns will offset increased foundary production. Economic changes affects job security.				
Molders	798	-3.1	12	84	7
	Employment expected to decline. Strong competition for few jobs. Labor saving innovations will slow down employment growth.				
MACHINING OCCUPATIONS					
Machinists and apprentices	9483	-5.5	142	1002	7
	Employment expected to decline despite expected growth for the nation as a whole. Openings are likely in maintenance shops of manufacturing plants. Competition expected to be strong.				
Tool and die-makers	4847	4.7	121	512	4
	Slow growth in employment. Moderate competition for jobs may increase as advances in tool-making processes limit growth of jobs.				
PRINTING OCCUPATIONS					
Compositors	5172	-19.7	44	546	12
	Employment expected to decline due to continuing trend to high speed phototypsetting computers. Some openings created by replacement needs. Competition intense.				
Lithographers and photoengravers	1159	0.9	26	122	5
	Employment expected to increase moderately for lithographers and decline for photoengravers as firms switch from letterpress to offset printing. Fairly strong competition.				
Printing press operators	5439	0.3	101	575	6
	Stable employment with jobs opening up due to replacement. Growth is limited because of faster and more efficient presses. Fairly strong competition.				
Bookbinders	1016	-10.3	34	107	3
	Negative growth in employment due to mechanization. Moderate competition for few openings due to replacement.				

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	WORKERS PER JOB
OTHER INDUSTRIAL AND RELATED OCCUPATIONS					
Assemblers	22043	1.42	804	2329	3
Employment expected to increase slowly in this area although faster than the average nationally. Since these jobs are in durable goods industries economic changes and national defense affect job opportunities. Moderate competition.					
Blue-collar worker supervisors	35165	6.42	1105	3716	3
Moderate growth in employment expected, mostly in nonmanufacturing industries. Due to competition for these jobs the best opportunities for those with leadership ability and some college.					
Boilermaking occupations	1740	32.36	96	184	2
Above average growth expected due to new construction of electric power plants and expansion in chemicals, petroleum, steel and ship building. Quite moderate competition for jobs affected by economic conditions.					
Furniture upholsterers	1115	-3.3	35	118	3
Employment decline expected as people buy inexpensive new furniture. Openings limited to replacement needs. Moderate competition.					
Inspectors (other)	3596	-5.0	90	380	4
Decline in jobs locally, but expanding nationally. Competition is moderate for jobs where machinery and products are becoming more complex.					
Millwrights	1977	13.0	69	209	3
Faster than average increase in employment due to construction expansion and improvement of plants. Competition moderate.					
Opthalmic laboratory occupations	1009	52.2	80	107	1
Rapid growth expected with increased emphasis on eye care. Rough equations between jobs and available workers.					
Packing inspectors	43353	2.6	1892	4581	2
Below average employment expected with moderate competition for jobs.					
Photographic laboratory technicians	1927	23.0	126	204	2
Rapid growth anticipated due to increasing use of photography in business, government, and research and development and popularity of amateur photography. Fairly moderate competition for jobs.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	WORKERS PER JOB
Fork Lift and Tow Motor operators	8571	9.3	203	906	4

About average increase in employment expected as firms expand the use of power trucks. Jobs sensitive to demand for manufactured goods. Moderate competition.

Production painters	4191	-5.1	71	443	6

Decline in area employment although average growth nationwide. Jobs affected by increased use of automatic painting processes. Fairly strong competition for replacement jobs.

Stationary engineers	4861	-15.2	69	514	7

Employment declining because of the use of more powerful and more centralized equipment. Strong competition for replacement jobs.

Welders	14069	11.36	433	1487	3

faster than average growth in employment due to expansion of metal working industries. Moderate competition.

OFFICE OCCUPATIONS

CLERICAL OCCUPATIONS

Bookkeeping workers	38033	-0.4	2136	4019	2

Employment declining somewhat, but replacement needs provide numerous jobs. Despite the increased use of office machines and computers competition for jobs is fairly moderate.

Cashiers	26515	8.9	1760	2795	2

About average growth of employment is threatened by adoption of automatic checkout systems. Moderate competition.

Collection workers	1630	14.47	92	172	2

Above average growth due to expansion of credit and delinquent accounts. Job opportunities for aggressive and personable people in retail firms and collection agencies. Moderate competition.

File clerks	9297	-.09	600	982	2

Stable employment with openings due to replacement needs. Jobs growing for the nation as a whole. Moderate competition.

Office machine operators	20428	5.17	793	2158	3

The spread of centralized and computerized recordkeeping and data processing systems is expected to cut down employment with available jobs to replacement needs. Increased competition for jobs.

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	WORKERS AVAILABLE	WORKERS PER JOB
Postal clerks	8894	-9.3	140	940	7

Declining volume of mail and increased automation of mail processing will reduce employment to replacement needs. Strong competition.

Receptionists	9509	30.1	1038	1005	1

Rapidly expanding employment opportunities in business, personal and professional services. Supply of good workers barely keeping up with demand.

Secretaries and stenographers	90603	32.9	10264	9573	.9

Rapidly expanding employment opportunities although dictating machines are limiting the demand for stenographers. Supply of good workers barely keeping up with demand.

Shipping and receiving clerks	14428	9.21	495	1505	3

Average growth of employment expected with moderate competition.

Stock clerks	13356	-0.8	499	1411	3

Stable employment locally and average growth nationally. Jobs supported by replacement with moderate competition as use of computers for inventory control expands.

Typists	35259	13.1	3105	3726	1

Somewhat above average employment growth as the growth of paperwork increases the demand for typists capable of handling a variety of work. Competition for good workers likely.

Other clerical workers, e.g.; counter clerks, dispatchers	21943	51.4	1562	3084	2

Much faster than average growth in employment expected in product control and shipping jobs with little competition for most jobs.

COMPUTERS AND RELATED OCCUPATIONS

Computer operating personnel	7788	15.0	267	873	3

Above average growth expected for console and peripheral equipment operators. Keypunch jobs expected to decline due to new direct entry techniques. Moderate competition for jobs.

Programmers	6458	22.0	288	336	1

Fast growing employment expected particularly in accounting and business. Excellent future for college graduates with computer science degrees. Competition for workers.

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	WORKERS AVAILABLE	WORKERS PER JOB
BANKING OCCUPATIONS					
Bank officers and managers	10469	31.4	659	1106	2
Fast growing employment opportunities for college trained management trainees capable of solving problems of new high cost technology and services. Moderate competition.					
Bank teller	7810	22.6	667	825	1
Fast growth and high replacement needs provide excellent opportunities with little competition.					
INSURANCE OCCUPATIONS					
Actuaries	538	31.0	30	57	2
Moderate competition expected for this fast growing but rather restricted mathematically oriented field.					
Claim representatives	3528	18.6	174	373	2
Above average employment growth expected with moderate competition.					
Underwriters, insurance agents and brokers	11507	13.4	463	1216	3
Slightly above average employment growth expected with moderate competition.					
ADMINIATRATIVE AND RELATED OCCUPATIONS					
Accountants	20574	1.6	665	2173	3
Below average growth in the area and average growth in national employment expected with high replacement needs. College graduates have the advantage.					
Advertising workers	2053	25.3	123	217	2
Faster than average growth expected for these jobs affected by business conditions. Moderate competition.					
Buyers	4796	28.2	348	507	1
Fast growing employment expected locally. Little competition expected for college trained applicants.					
City managers	5333	-2.2	193	563	3
Declining employment expected locally, with above average national growth. Openings due to replacement needs. Moderate competition for college graduates in public administration.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	WORKERS PER JOB
College administrators	1294	18.3	77	173	2
Moderate competition for above average growth in employment. Budget restraints and anticipated decline in college enrollment may diminish future employment growth.					
Credit managers	1595	20.1	82	169	2
Faster than average growth expected as use of credit expands. Moderate competition.					
Lawyers	8446	41.4	733	892	1
Fast growing employment prospects with best prospects in small towns and expanding suburbs. Little competition expect for salaried jobs.					
Personnel and labor relations workers	8993	12.0	370	950	3
Average growth expected for employment in jobs dealing with occupational and safety standards, equal opportunity rules and pensions. Moderate competition.					
Public relations workers	2332	12.6	112	246	2
Average growth expected in these jobs as business and government seek to gain public approval. Moderate competition.					
Purchasing agents	5515	14.9	221	583	3
Above average employment growth expected for persons with masters degrees in business administration. Moderate competition.					
SERVICE OCCUPATIONS					
Building custodians	44990	24.5	3753	4754	1
Fast growing employment expected to meet the maintenance needs of new office buildings, and apartment houses. Good opportunities with little competition.					
Hotel housekeepers	465	19.6	57	49	.9
Fast growing job opportunities expected as new hotels and motels open up. Competition for workers.					
FOOD SERVICE OCCUPATIONS					
Bartenders	7266	12.8	398	768	2
Slightly above average growth expected with moderate competition.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	WORKERS PER JOB
Cooks and Chefs	14915	19.0	1029	1575	2
Above average growth expected with moderate competition.					
Dining room attendants, waiters and waitresses	33256	6.2	1922	4968	3
Below average growth expected with part time jobs plentiful. Moderate competition.					
Food counter workers	8473	8.0	520	895	2
Below average employment growth with moderate competition.					
Meat cutters	6743	-3.2	160	712	4
Employment expected to decline as cutting and wrapping is centralized. Moderate competition for replacement jobs.					
PERSONAL SERVICE OCCUPATIONS					
Barbers	3584	-15.6	96	379	4
Employment expected to decline, with jobs based on replacement only. Rising opportunities for hairdressers. Competition moderate.					
Cosmetologists and Hairdressers	9961	18.2	878	1052	1
Above average growth in employment. Good opportunities for new, experienced and parttime workers. Little competition.					
Funeral directors and embalmers	911	-1.4	35	96	3
Employment change about level with openings based on replacement needs. Moderate competition.					
Private household workers	19051	-23.6	978	2013	2
Employment is expected to decline substantially, but replacement needs will provide jobs with moderate competition.					
PROTECTIVE AND RELATED SERVICE OCCUPATIONS					
Fire fighters	3759	-10.7	20	397	20
Employment is expected to decline locally, with small replacement requirements. Thus, competition for existing jobs is likely to be extremely intense.					
Guards	14246	-9.1	669	1505	2
Employment expected to decline locally although national growth is above average. Replacement demand provides many openings, with moderate competition.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	11 WORKERS PER JOB
Police officers	15606	-6.1	315	1438	5
Employment expected to decline locally although national growth is above average. Fairly strong competition for jobs. Openings due to replacement needs.					
Health and regulatory inspectors (gov't)	2574	16.6	126	272	2
Above average growth expected for employment in jobs affecting consumer products and health. Moderate competition.					
OTHER SERVICE OCCUPATIONS					
Mail carriers	6163	-9.4	42	651	16
Cutbacks in mail deliveries expected to reduce employment to replacement demand. Extremely heavy competition for few jobs.					
Telephone operators	9782	-12.3	482	1034	2
Employment declines expected because of more direct dialing and other improvements. Moderate competition expected for many replacement openings.					
EDUCATION AND RELATED OCCUPATIONS					
TEACHING OCCUPATIONS					
Kindergarten and elementary school teachers	36716	4.7	2026	3880	1
Some increase expected locally, but nationally employment is expected to decline as enrollments continue to decline until the early 1980's. Most jobs will result from replacement demand.					
Secondary school teachers	28858	-11.8	718	3049	4
Substantial declines expected in employment with moderate competition for replacement demand.					
College and university teachers	10858	-14.8	129	1147	9
Employment declines expected, particularly for persons without the Ph.D. Strong competition for jobs depending upon the field.					
Teachers aides	4816	82.6	650	509	.8
Much faster than average growth in employment expected, apparently greatly outpacing persons interested in this work.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	WORKERS PER JOB
LIBRARY OCCUPATIONS					
Librarians	4706	13.2	345	497	1
Close to average growth expected. Best opportunities away from the central city. Little competition for jobs.					
Library technicians and assistants	3178	20.9	284	336	1
Faster than average growth expected, particularly in public and university libraries.					
SALES OCCUPATIONS					
Real estate agents and brokers	7137	11.6	420	754	2
Average growth in employment expected in this moderately competitive field. Economic changes will affect job prospects.					
Stock and bond sales agents	3140	7.9	139	332	2
Employment growth somewhat below average. Moderate competition for jobs which depend upon expected activity in the stock markets.					
Sales workers, n.e.c. (automobile, gasoline, route drivers, retail and wholesale trade)	111647	8.2	5728	11797	2
About average growth in employment. High turnover should create jobs with moderate competition.					
CONSTRUCTION OCCUPATIONS					
Bricklayers, stone masons and marble setters	4573	13.9	140	483	3
Employment expected to grow at a slightly above average rate depending upon construction activity. Moderate competition.					
Carpenters	20543	17.1	860	2171	3
Employment expected to grow at a rather rapid rate depending upon new construction activity as well as modifications and maintenance. Moderate competition.					
Cement masons and terrazzo workers	2023	22.5	81	214	3
Much faster than average increase in employment expected due to increased use of concrete construction materials. Moderate competition.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	WORKERS PER JOB
Construction laborers	14804	0.5	348	1564	4
	No growth expected locally, although employment is dependent upon changes in construction activity and replacement demand. Moderate competition.				
Drywall installers and finishers	1487	7.1	27	157	6
	Below average growth of local employment, although much faster than average growth nationally. Jobs will be increasingly affected by use of drywall instead of plaster. Fairly strong competition.				
Electricians	13328	12.8	409	1408	3
	Moderate competition expected for faster than average growth of jobs dependent upon new construction and renovations.				
Glaziers	745	31.7	42	79	2
	Very rapid growth in employment as glass buildings continue their popularity. Moderate competition.				
Structural metal crafts (ironworkers)	1929	9.1	52	204	4
	Moderate competition for structural steel jobs expected to grow at average rate. Jobs are more plentiful in early spring.				
Bulldozer, crane and excavating machine operators (operating engineers)	9876	13.0	536	1044	2
	Employment expected to grow somewhat faster than average depending upon expansion of office buildings and factories. Moderate growth.				
Painters	9323	3.6	295	985	3
	Below average growth of employment expected. Moderate competition.				
Paperhangers	1078	11.5	69	114	2
	Average employment growth expected for these wall-covering jobs. Moderate competition.				
Roofers	264	27.6	117	280	2
	Much faster than average growth expected with moderate competition.				
Sheetmetal workers	4935	-9.2	36	521	14
	Local decline in employment expected for these jobs with intense competition. Average national growth. Replacement demand.				

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	WORKERS PER JOB
Tilesetters	776	-1.5	13	82	6

Fairly strong competition for declining jobs locally, although growth is average for the nation.

OCCUPATIONS IN TRANSPORTATION

AIR TRANSPORT OCCUPATIONS

Airplane mechanics	1151	-1.9	11	122	11

Replacement demand for declining job growth locally although growth nationally is above average. Fairly intense competition.

Airplane pilots	730	22.2	22	77	4

Much faster than average growth for these jobs expected. Moderate competition. College graduates with flight experience having the best chance.

MERCHANT MARINE OCCUPATIONS

Officers, pilots and pursers	572	6.5	19	60	3

Slower than average growth of jobs expected. Moderate competition for graduates of maritime training programs.

Sailors	674	-19.1	-3	71	--

Intense competition for jobs where replacement demand is declining. Smaller crews needed for new ships.

RAILROAD OCCUPATIONS

Brake operators	1068	8.1	29	113	4

Somewhat below average growth in employment in jobs due to labor saving improvements in freight hauling. Moderate competition.

Locomotive engineers	885	4.8	31	90	3

Slower than average growth in employment expected as new, larger freight cars improve freight hauling efficiency. Moderate competition for jobs based mostly on replacement needs.

Shop trades	796	-9.8	13	84	6

Declining employment expected with fairly strong competition for replacement jobs. Shop efficiency is on the increase.

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	WORKERS AVAILABLE	WORKERS PER JOB
DRIVING OCCUPATIONS					
Busdrivers	4513	8.4	203	477	2
Moderate competition expected for employment growing slightly below average in local and intercity jobs.					
Truckdrivers	28719	2.7	539	3034	6
Fairly strong competition for employment in local and long distance trucking jobs which are expected to increase only slightly. National growth in employment is faster than average. Falling oil supplies may result in increased use of railroad freight services.					
Parking attendants	1026	-1.0	41	119	3
Growth of self-parking and increased use of mass transportation due to failing oil supplies may cut further into these jobs.					
Taxicab drivers	5808	25.1	383	614	2
The high increase of employment expected may be drastically cut if solutions to taxi services are not found and if more mass transit is used. High turnover creates opportunities.					
SCIENTIFIC AND TECHNICAL OCCUPATIONS					
Aerospace engineers	853	-13.1	-1	90	--
Local decline expected withslow growth in national employment. Intense competition expected for jobs in this area.					
Chemical engineers	1899	7.3	40	201	5
Somewhat less than average growth in employment expected in increasingly automated processes with fairly strong competition.					
Civil engineers	3241	6.8	98	342	3
Slow growth expected for jobs with moderate competition dependent upon new construction and environmental pollution control and energy sufficiency development.					
Electrical engineers	7973	7.3	172	842	5
Slow growth expected in employment depending upon demand for housing, industrial buildings, electric power generating plants and transportation systems. Fairly strong competition.					
Industrial engineers	5177	-2.0	75	547	7
Local decline but faster than average growth in employment expected nationally. Fairly strong competition for replacement openings.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	WORKERS AVAILABLE	WORKERS PER JOB
Mechanical engineers	5804	15.2	194	528	3
Faster than average growth expected in jobs related to growing demand for industrial machinery, new energy systems, and pollution control. Moderate competition.					
Sales engineers	1443	9.8	40	152	4
Average growth in employment expected with moderate competition.					
Life and physical science occupations	7084	4.6	195	749	4
Lower than average growth in local employment, with faster growth for life sciences and keen competition among physicists. Jobs dependent upon increased expenditures for medical research, pollution control and research into energy development.					
Mathematicians and statisticians	718	19.4	43	76	2
Slow growth expected for employment in mathematics and faster than average growth in statistics. Moderate competition.					
OTHER SCIENTIFIC AND TECHNICAL OCCUPATIONS					
Drafters	10111	21.2	348	1068	3
Employment expected to grow much faster than average because of increasing complexity of designs of products and processes. Moderate competition.					
Engineering and science technicians	5854	25.6	271	619	2
Employment expected to grow much faster than average for support of the growing number of engineers and scientists. Job opportunities for graduates of postsecondary school training programs. Moderate competition.					
Surveyors	1041	38.6	54	110	2
Much faster than average growth expected in employment depending upon economic changes. Moderate competition.					
MECHANICS AND REPAIRERS					
TELEPHONE CRAFT OCCUPATIONS					
Central office craft occupations	9058	-3.9	54	957	18
Intense competition for jobs locally declining employment, although growth is about average nationally.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	WORKERS AVAILABLE	WORKERS PER JOB
OTHER MECHANICS AND REPAIRERS					
Air-conditioning, refrigeration and heating mechanics	6540	24.2	293	691	2
Much faster than average growth in employment expected with moderate competition.					
Appliance repairers	3562	11.5	117	376	3
Employment expected to grow at average rate with moderate competitions.					
Automotive body repairers	3119	4.7	49	329	7
Slower than average growth locally although average growth nationally. Fairly strong competition.					
Automobile mechanics	19810	13.9	597	2093	4
Somewhat above average growth of employment expected. Moderate competition.					
Business machine repairers	1846	40.0	89	195	2
Much faster than average growth expected with moderate competition.					
Computer service technicians	1694	51.4	93	179	2
Much faster than average growth in employment expected with moderate competition.					
Electrical, electronic technicians	4367	10.9	93	91	1
Employment expected to increase at the average rate with no job competition.					
Heavy equipment and diesel mechanics	17141	4.3	436	1811	4
Slower than average growth expected locally, but average growth in employment for the nation. Moderate competition.					
Jewelers	817	-4.5	30	86	3
Employment expected to decline, with replacement demand providing some jobs. Moderate competition.					
Shoe repairers	797	-21.3	31	84	3
Employment expected to decline substantially. Jobs are available from replacement demand with moderate competition.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	WORKERS AVAILABLE	WORKERS PER JOB
HEALTH OCCUPATIONS					
DENTAL OCCUPATIONS					
Dentists	3049	38.2	358	322	.9
Faster than average employment growth expected assisted by growth of prepayment plans. Supply appears to fall behind the growth of opportunities.					
Dental assistants	2095	52.4	287	223	.8
Much faster than average growth in employment expected because of increased use of assistants by dentists in their practices. Insufficient graduates from approved programs to meet the demand.					
Dental hygienists	452	185.6	141	48	.3
Very rapid growth in employment expected as repayment plans incorporate dental care. Insufficient workers to meet the demand.					
Dental laboratory technicians	875	3.7	35	92	3
Below average growth expected for employment in laboratories which can take care of expansion of the demand for dentures without expanding jobs. Moderate competition.					
MEDICAL PRACTITIONERS					
Optometrists	536	42.5	45	57	1
Much greater than average growth in employment expected with little competition.					
Physicians and osteopathic physicians	10765	54.4	1044	228	.2
Great growth in employment opportunities with supply unable to keep up with the demand.					
Podiatrists	432	29.4	30	46	1
Rapid growth expected in employment with balanced supply and demand.					
Veterinarians	362	71.3	35	38	1
Very rapid increase expected in employment for graduate work with increasingly high standards.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	WORKERS AVAILABLE	WORKERS PER JOB
MEDICAL TECHNOLOGISTS, TECHNICIANS AND ASSISTANT OCCUPATIONS					
Medical technicians, including electro-cardiograph, electro-encephalographic, emergency, optometric and medical laboratory technicians	6701	54.4	807	708	.9
Growth of employment expected to be much faster than average due to the increased use of equipment for testing for various medical conditions. Insufficient workers available for expanding jobs.					
Medical records technicians and clerks	376	74.7	60	40	.7
Very rapid growth of employment opportunities resulting in unmet needs for workers because of the growing record requirements of medical payment plans.					
Radiologic (X-ray) technicians	2009	23.6	197	212	1
Much faster than average growth of employment expected due to rapid expansion of X-ray diagnostic methods. Workers barely able to keep up with demand.					
NURSING OCCUPATIONS					
Registered nurses	19735	20.9	1724	2085	1
Above average growth in employment expected despite the increased demands due to more complex treatment programs. Competition for higher paying jobs likely.					
Licensed practical nurses	13118	64.0	1951	1386	.7
Very rapid growth in employment expected to satisfy current nursing needs. Not enough workers for available jobs.					
Nursing aides, orderlies and attendants	14321	35.3	1430	1513	1
Very rapid growth in employment expected particularly in nursing homes and other long-term care facilities which are expanding rapidly to take care of the older population.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	WORKERS AVAILABLE	WORKERS PER JOB
THERAPY OCCUPATIONS					
Occupational, physical and speech therapists and assistants	2635	59.8	300	278	.9
Much faster than average growth anticipated in employment for rehabilitation work. Number of graduates from approved programs barely able to keep up with the number of jobs.					
OTHER HEALTH OCCUPATION					
Dieticians	752	17.2	61	79	1
Faster than average employment growth expected in jobs for workers with specialized training. Little competition.					
Dispensing opticians	1009	52.2	80	107	1
Very rapid growth in employment expected in jobs related to improved eye care. Little competition.					
Health service administrators	3195	24.5	214	338	1
Faster than average growth in employment due to increasingly complex health programs. Little competition.					
Pharmacists	4030	9.4	226	426	2
Average growth in employment expected. Health care facilities expanding use of pharmacists.					
SOCIAL SCIENTISTS					
Economists	2663	18.6	108	281	3
Faster than average employment anticipated in jobs in non-academic areas. Competition moderate for jobs in college and universities.					
Psychologists	1658	2.4	44	175	4
Increased employment opportunities expected in applied areas for those with the Ph.D. Moderate competition.					
SOCIAL SERVICE OCCUPATIONS					
COUNSELING OCCUPATIONS					
Employment, vocational education, school counselors	3066	71.2	348	324	.9
Very rapid growth in employment expected in other than school counseling. Rapidly changing job requirements raise demand for vocational counselors. Little competition except for school counselors.					

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	WORKERS PER JOB
Clergy	4005	7.4	184	423	2

Below average growth in employment expected particularly in protestant denominations. Moderate competition for declining or merged churches.

OTHER SERVICE OCCUPATIONS

Recreational workers	2284	21.7	140	241	2

Faster than average growth in employment expected with moderate competition.

Social service aides, including cooperative extension, homemakers, religious workers, and other aides	15637	30.2	1631	1652	1

Much faster than average growth expected in employment in jobs arising from increasing awareness of social needs and supporting legislation. Little competition.

Social worker	8861	10.5	559	936	2

Average expansion of employment expected in response to needs defined by social welfare legislation. Moderate competition.

ART, DESIGN AND COMMUNICATIONS OCCUPATIONS

PERFORMING ARTISTS

Musicians	3102	16.5	184	328	2

Somewhat above average employment expected with moderate competition.

DESIGN OCCUPATIONS

Architects	2395	33.5	144	253	2

Much above average growth in employment expected, particularly in expanding economic conditions. Moderate competition.

Designers, industrial and interior	3924	10.6	145	417	3

Average growth in employment expected. Fewer design changes expected to reduce employment in industry to below average rate. Faster than average growth expected in interior design of homes and business establishments. Moderate competition.

Decorators, window dressers	1724	9.9	94	182	2

Average employment increase expected with moderate competition.

OCCUPATION	PHILADELPHIA EMPLOYMENT 1974	EMPLOYMENT CHANGE % 1974-1985	AVERAGE ANNUAL OPENINGS	AVERAGE ANNUAL WORKERS AVAILABLE	WORKERS PER JOB
Photographers	1901	10.8	67	201	3
Average growth of employment expected in jobs, especially good in law enforcement and scientific and medical research photography.					
COMMUNICATIONS RELATED OCCUPATIONS					
Authors	1259	2.9	57	133	2
Less than average increase of employment in largely self-employed jobs with moderate competition. Popularity of paperback books provides opportunities.					
Editors and reporters	3985	22.3	249	421	2
Faster than average growth expected for employment in jobs, mostly on small newspapers. Moderate competition for persons trained in school of journalism.					
Radio operators	720	9.2	28	76	3
Average increase in employment expected for jobs with moderate competition. Great interest evoked because of the popularity of citizen band radio transmission.					

INTRODUCTION TO PART B

This section describes the Student Needs Assessment Survey of the 1070 eighth and ninth graders and the 1292 tenth and evleventh graders in the Philadelphia public schools. That survey generated the data that will be used in the analysis presented in subsequent chapters.

In Chapter I, "Expected Job Openings and the Occupational Aspirations of High School Students," the years of schooling required for entry into and satisfactory performance of each of the occupations in the Philadelphia economy are utilized to determine the overall pattern of educational needs from a manpower perspective. The educational requirements implicit in the occupational aspirations of the students are derived in a similar manner. These are then compared with the labor market requirements and with the students' professed goals.

Chapter II utilizes multiple regression analysis to determine the social background influences on educational and occupational plans. Further, the determinants of knowledge of the world of work are explored as well as the influences of that knowledge on aspirations and expectations. Lastly, Chapter II presents data on the impact of a variety of work-related values on the students' career choices.

Chapter III compares the students enrolled in vocational-technical programs with students in all other programs of the Philadelphia public school system. Similarities and differences of background, of occupational and educational plans, of perception of guidance personnel and of

type of work motivation are presented.

Chapter IV examines the knowledge of the world of work battery in relation to the sources of knowledge used or sought by students. A few of the tables in this chapter, presented in a bivariate fashion, recapitulate some of the findings seen in the multivariate analysis of Chapter II. (This is provided especially for those who are not familiar with the interpretation of multiple regression analyses.) An appendix to Chapter IV presents data on the perception of guidance counselors' help in job selection among eighth through eleventh grade students.

A summary and discussion of the study comprises Chapter V.

Methodology

a. Sampling Design and the Sample

In the first year, the student needs questionnaire was administered to 1070 eighth and ninth grade pupils from the Philadelphia school system. In the second year the revised questionnaire (discussed below) was administered to 1293 tenth and eleventh grade pupils from all but two of the Philadelphia public school system high schools.* Analysis of both samples' demographic characteristics indicates that the sampling design

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* In one case, the principal refused permission to interview the students; in the other case, the atypical nature of the school and of the school's population suggested that its inclusion in the sample would unnecessarily skew the sample (discussed further elsewhere in this report.).

produced a remarkably representative selection. For the first wave, the sample is 37% white, 57.2% black, 3.2% Spanish surname, 0.7% American Indian, 0.8% oriental, and 1.0% who chose to list themselves as "other." The percentages of males and females are 46.3% and 53.7%, respectively. For the second wave, the sample characteristics are: 33% white, 61% black, 2.3% Spanish surname, 0.2% American Indian, 0.5% oriental, and 1.2% "other." 43.2% of this second wave sample are males; 56.8% are females. These figures correspond closely with the system's population for these grades.

The first wave sample design required a three stage process: (one) the city's public schools were stratified according to geographic location (i.e. district), grade levels, racial composition, curriculum, and social class composition; (two) nineteen schools were chosen to provide a representative sample of the system; (three) within each school, two, three or four classes were selected to receive the interview schedules. Each chosen school was asked to provide either "average" classes or, when three or more classes were used in one school, to provide classes spanning the ability range of the school's enrollment.

In the first wave, only two schools refused to participate. Fortunately these were in areas where we had selected more than one school and/or where we could add another school of similar composition. The final first wave sample includes schools from all the city's eight school districts. The participating schools were:

Shaw	Audenried
Vare	Masterman
Bok	Thomas
McCall	Dobbins
Gillespie	Penn Treaty
Leeds	Henry
Harding	Olney - Wyoming
Washington	Wilson

In the second wave, we attempted to interview students from all of the Philadelphia School System's high schools. Thus, no sampling design was required. As noted, two schools were not included in the sample. The participating schools were:

Bartram	Edison
West Philadelphia High School	Mastbaum
West Philadelphia Univ. City High	Central
Franklin High School	Germantown
Penn	Roxborough High School
Franklin Learning Center	High School for Girls
South Philadelphia High School	King
Bok	Frankford
Gratz	Olney
Overbrook	Lincoln
Dobbins	Northeast
Kensington	

b. Administration of the Interview Schedule

Ideally we would have randomly selected students from each of the eighth through eleventh grade populations. Also, ideally, each student would have the interview schedule individually administered. These procedures, however, would have greatly exceeded the budget. On the other hand, the least expensive method of administering a questionnaire -- a totally self-administered document distributed to the classrooms -- was equally unacceptable. Many of the students have poor reading skills and or difficulty interpreting questions. Much of the data would be meaningless or incomplete.

Thus, we compromised. We developed a system that provided the economy of group administration with the advantages of someone reading the interview schedule to the students and responding to questions and problems. To accomplish this, we hired and trained interviewers to administer the interview schedules to the student groups. The interviewers rehearsed standardized instructions and explanations for each question. For each class, questions were read out loud to the students, stopping when necessary to repeat, explain or interpret. Every student had a copy of the interview schedule on his/her desk.

Undoubtedly, there are drawbacks with our group administration of the survey instrument. Some students may have been reluctant to ask for clarification in the presence of their classmates. Occasionally, a student would be very late to class and thus miss

the earlier questions. On a few occasions, a student would fall behind the others in completing the answers. We attempted to deal with these problems by keeping the interview sessions at least ten minutes less than the class periods, thereby allowing the interviewer to help individual students who were shy, slow or late. While this reduced the possible number of questions included in the survey, we feel the advantages to the quality of data outweighs the limitations.

c. The Interview Schedule.

The target population's reading and writing ability, combined with the necessity of group administration, required some modifications to conventional questionnaire design. "Skip patterns" were deemed generally too complicated for the sample and were limited to just one (i.e., the skip of the four questions dealing with work in relation to child rearing). Open ended questions were restricted to requests for job titles, school names, and the number of siblings.

With both samples, we utilized the results of the pretests to create fixed choice questions for several items that were originally open ended. Analysis of the pretest also suggested several modifications of questions and elimination of others. Copies of the interview schedules are appended to this report. As can be seen, a variety of question formats were used to ascertain the students' perceptions, beliefs, knowledge and orientations about work. Because of the youth and inexperience of the sample several questions were hypothetical. Whenever possible we personalized the issues, e.g., asking them to

respond to statements like "if I can't find a job I see nothing wrong with receiving money from the unemployment office" rather than "do you think it is wrong for unemployed people to receive money from the government."

The first and second wave questionnaries are as similar to each other as possible. Several questions were deleted from the second wave document because they were inappropriate for high school students. These questions pertained to school selection and to introductory math courses. The ordering of the questions occasionally differs, reflecting our attempt at improving the flow and speed of administration in the second year of the study. Clearly, however, the most significant difference is in the inclusion of the "Knowledge of the World of Work" battery in the second wave questionnaire. These series of questions enabled us to ascertain the students' familiarity with the tasks and educational requirements of various jobs. We adapted the battery from the National Longitudinal Surveys' study of young men and young women. We, thus, will be able to compare the responses of these tenth and eleventh graders with a nationally representative sample.

In addition to the questions listed on the schedule, there are spaces allocated for other data to be provided by the school system. These data are: the students' census tracts, California Achievement Test scores, ZIP codes, and identification numbers. The census tracts and ZIP codes allow a general measure of economic standing for the

students' families. The CAT scores provide standardized test results for comparisons with data from the interview schedules. The identification numbers are required to access the CAT scores and will enable us to perform a follow-up study if so requested.

d. Summary

The sample provides a fairly representative group of students from which we may, with appropriate caveats, generalize to the Philadelphia eighth through eleventh grade public school populations. Indeed, the results of this study are probably relevant for many large American school systems.

The administration of the interview schedule was accomplished within a limited budget but appears to have allowed for individual students' problems and questions.

Chapter 1: Expected Job Openings and the Occupational Aspirations of High School Students

Educational planning is undertaken so that schools can better achieve the dual objectives of (1) meeting the manpower needs of the community and (2) encouraging individual self-fulfillment. The educational requirements implicit in the community's need for trained manpower can be obtained by forecasting the occupational structure of the Philadelphia labor market and then determining the educational and training requirements demanded by that structure. It is a much more difficult matter to assess the educational requirements for meeting the second of these objectives, since no unambiguous determination of how much education each individual "needs" can be made. We have approached this question by asking students about their occupational aspirations, and then determining the educational requirements for entry into these desired jobs. While this is an incomplete assessment, since it ignores those contributions which education makes to the quality of each individual's life that are not related to preparation for a career, it does allow us to evaluate a major component of student educational needs.

Philadelphia's manpower requirements are presented first, after which the occupational aspirations of students in grades eight through eleven are discussed. The wide disparity between the high aspirations of young people and the requirements of society, which has recently become evident in the national data, is confirmed

by the figures for Philadelphia. This disjunction between aspirations and opportunities raises urgent problems for responsible educational planning by the Philadelphia School District.

Educational Requirements and Philadelphia's Manpower Needs*

The manpower requirements approach, which has frequently been used in educational planning (Eckhaus, 1964; Scovile, 1966, Parnes, 1968; Bowles, 1969; and Buechner, 1972), involves specifying educational requirements for each of the occupations listed by the Census Bureau. Once the requirements for all the individual occupations have been determined, the overall pattern of educational and training needs in Philadelphia can be derived from the distribution of employment in the Philadelphia SMSA among occupations.

The usual method of specifying educational requirements is to identify the levels of proficiency in reasoning skills, language skills and mathematical skills required to perform adequately in each of the 4,000 jobs listed in the Dictionary of Occupational Titles, and to translate these levels of proficiency into years of schooling required for occupations identified by the Census Bureau. Specifying educational requirements in this way measures the amounts of education that are effectively used in the operation of the economic system.

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*Philadelphia's manpower needs were assessed during the first year of this project. This section is taken largely from Chapter 2, Part B of "Decision Model for Vocational Education," Harms et al., October 31, 1977.

However, it is widely recognized that employers often demand a high school or college diploma (the so-called sheepskin effect) for entry into jobs. This is true even when the skill content of the jobs does not seem to warrant either the degrees or the years of schooling required as a prerequisite for employment. For example, 50 percent of the jobs in the American economy in 1960 could have been performed adequately by someone with 9 to 11 years of schooling, and only 18 percent of the jobs required 12 years or more of education for satisfactory performance. Employers, however, filled 47 percent of the jobs with individuals who had completed 12 or more years of schooling, and only 22 percent of the jobs with persons with 9 to 11 years of education (Buechner, 1972:207).

We have chosen therefore, to estimate educational requirements by using the "Preferred Level of Institutional Preparation" which is published by the Pennsylvania Department of Labor and Industry for most of the Census occupations.* Derived from information published in the U.S. Department of Labor's 1976-77 Occupational Outlook Handbook, this measure of educational requirements is based on the amount of education and training generally required (or preferred) by employers for entry into and advancement in an occupation. The levels of institutional preparation distinguished are high school graduation, vocational-technical-business education or apprenticeship training, associate degree, bachelors degree and post-graduate education.

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*The preferred level of institutional preparation is published for more than three-fourths of these occupations. Educational requirements for the remaining occupations were determined by us, and are available upon request.

Table 1.1 presents the percentage distribution of employment and job openings (target levels of projected employment opportunities) by preferred level of institutional preparation over the period 1974-1985. These levels of employment and job opportunities in each occupation were developed during the first year of this project, and explanations of their derivation can be found in the report submitted on October 31, 1977 and appended to this volume. The occupations were then grouped using the preferred level of institutional preparation. The total number of job openings between 1974 and 1985 requiring post-graduate education, bachelors degree, associate degree, vocational-technical-business education or apprenticeship training, or high school graduation were then obtained. The precentage distribution of employment opportunities by preferred level of education was then computed. In addition, the distribution of actual employment in 1974 and projected employment for 1985 by preferred levels of education are shown in this table.

Despite the fact that the occupational structure of the Philadelphia SMSA has undergone dramatic shifts since 1960, away from the older manufacturing occupations and toward service occupations, the educational requirements demanded by the occupational structure appear to have stablized by 1974. Table 1.1 shows that the proportions of jobs requiring each level of institutional preparation are virtually unchanged between 1974 and 1985, though employment is expected to grow from 1.98 to 2.18 million. Jobs requiring four years or more of college education account for about 15 percent of employment in both years, while jobs requiring an associate degree account for almost 11 percent. Almost one-fourth of the jobs in both years require training beyond the high school diploma, either in a technical, vocational or business school or in an

Table 1.1

DISTRIBUTION OF EMPLOYMENT AND JOB OPENINGS BY PREFERRED LEVEL OF INSTITUTIONAL PREPARATION, PHILADELPHIA SMSA 1974-1985

Preferred Level of Institutional Preparation	1974 Employment		1985 Employment		Average Annual Target Openings 1974-85 (Growth plus labor force separations)	
	Number	Percent	Number	Percent	Number	Percent
Post-graduate degree	51,224	2.6	64,258	2.9	2,690	2.7
Bachelors degree	246,753	12.3	275,062	12.5	12,365	12.3
Associate degree	212,159	10.6	235,508	10.7	10,910	10.8
Technical, vocational, business school or apprenticeship training	471,693	23.6	539,474	24.5	24,373	24.2
High school diploma incl. high school plus on job training	816,830	40.8	888,929	40.4	44,210	43.9
Less than high school diploma	202,809	10.1	194,808	8.9	6,174	6.1
All Occupations	1,983,438	100.0	2,183,117	100.0	100,451	100.0

apprenticeship program. About two-fifths of the jobs require a high school diploma, though employers often prefer some on-the-job training or previous experience even for jobs like waitress or bus driver. The reamining 9 or 10 percent of the jobs are open to those who have not earned a high school diploma. The percentage distribution of job openings closely parallels the employment distribution: 15 percent of the job openings require four years or more of college, 11 percent require an associate degree, 24 percent require some formal training beyond high school, 44 percent require a high school diploma, and 6 percent of the openings can be filled by those with less than a high school diploma.

Table 1.2 presents employment and average annual job openings between 1974 and 1985 in each of the technical and vocational fields in which the Philadelphia school system offers training. Of these, service occupations are the most rapidly growing. Between 1974 and 1985, the proportion of total employment accounted for by service occupations* increases from 38 percent to 41 percent. This growth in employment, together with the pattern of labor force separations in the service sector, explains the fact that 56 percent of the job openings between 1974 and 1985 will be in service occupations.

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*The service occupations are personal services, business data processing, secretarial, distribution, clerical and health services.

Table 1.2

DISTRIBUTION OF EMPLOYMENT
BY VOCATIONAL EDUCATION CLUSTER

Vocational Education Cluster	1974 Employment		1985 Employment		Average Annual Target Openings 1974-85 (Growth plus labor force separations)	
	Number of Jobs	Percent of Total	Number of Jobs	Percent of Total	Number of Jobs	Percent of Total
(1) Power Mechanics	52,503	2.6	55,158	2.5	1,232	1.2
(2) Manufacturing Electro-mechanical	18,906	1.0	23,255	1.1	728	0.7
(3) Building Construction and mainten.	145,363	7.3	159,883	7.3	4,814	4.8
(4) Communications	23.771	1.2	24,466	1.1	735	0.7
(5) Personal Services	215,106	10.8	236,156	10.8	13,742	13.7
(6) Metal processing	65,796	3.3	65,792	3.0	1,327	1.3
(7) Business Data Processing	58,541	3.0	69,931	3.2	3,380	3.4
(8) Secretarial	125,862	6.3	160,265	7.3	13,369	13.3
(9) Distribution	57,335	2.9	59,159	2.7	1,501	1.5
(10) Clerical	198,767	10.0	239,828	11.0	14,435	14.4
(11) Health Services	90,380	4.6	127,212	5.8	9,421	9.4
(12) Apparel Trade	57,391	2.9	44,219	2.0	1,428	1.4
(13) Drafting	11,367	0.6	13,938	0.6	407	0.4
(14) Agriculture	65,027	3.3	62,717	2.9	2,212	2.2
All Clusters	1,186,115	59.8	1,341,979	61.3	68,731	68.4
Other	797,323	40.2	841,138	38.7	31,720	31.6
Total Employment	1,983,438	100.0	2,183,117	100.0	100,451	100.0

Thus, while the pattern of educational requirements, as measured by the preferred level of institutional preparation, will not change much in this period, vocational education and career guidance programs must be cognizant of the continuing shift of employment opportunities to the service sector.

Another very important finding that emerges in Table 1.2 is that about 60 percent of employment in 1974 and 1985, and 68 percent of the expected job openings in the eleven year period between those dates, are in occupations in which the Philadelphia school system offers vocational training. This figure is much higher than the 24 percent of the jobs in Table 1.1 that require technical, vocational, or business school, or apprenticeship training, for two reasons. First, some of the occupations for which vocational education programs are available require a college education. This has been recognized by school system administrators who have expanded the academic course offerings at vocational schools and, most recently, have developed two skills centers that will provide vocational training for students while allowing them to pursue academic and other courses at a comprehensive high school. One result has been that fully one-third of the 1976 graduates of Philadelphia's vocational-technical high schools went on to college in the Fall of 1976 and more than three-fourths of these were enrolled in four year colleges (School District of Philadelphia, 1977). On the other hand, many of the occupations for which vocational education programs are available do not require specialized vocational training, but can be mastered on the job by someone with a high school education. This is particularly true of jobs in

clerical or distributive (sales) occupations. The skills which many employers value are the ability to read, to write, to compute, to learn new skills and to work cooperatively and responsibly with others. Nevertheless, vocational education, when combined with a solid foundation in language, computational and study skills, may be useful preparation for entrance into a broad spectrum of post-high school education and employment experiences. From the point of view of labor market requirements, it is apparent that an expansion of the number of students receiving a vocational-technical education in high school would contribute to meeting the manpower requirements of the community.

A vocational education is particularly advantageous for those students who do not go on to college. The Philadelphia School District's own surveys of high school graduates indicates that among those who obtain employment following high school graduation, hourly wages are higher and unemployment is lower for graduates of vocational-technical high schools (School District of Philadelphia, 1977). Other studies (Hu et. al., 1971; Corazzini, 1968; Taussig, 1968; and Kaufman et al., 1967) indicate that among high school graduates who do not attend college, graduates of vocational-technical high schools earn more money and are employed a greater percent of the time than comparable graduates of comprehensive high schools. One study (Hu et. al., 1971) of 2,767 high school graduates (including graduates of Philadelphia high schools, although they are not identified by city in the article) found that in the first year after graduation students with degrees from vocational schools earned, on the average, $54 more per month than those from

comprehensive high schools. (This is in 1967 dollars. Correcting for inflation, the difference in 1979 dollars would be about $108 a month.) This represents the difference in earning that is attributable to differences in curriculum. It is net of the effects on earnings of such factors as sex, race, IQ, marital status and father's education.

Since the evidence indicates that vocational training contributes to meeting the manpower requirements of the community, and that in fact there is some evidence to indicate that the labor market rewards those who obtain it, the question that arises is why more students are not enrolled in such programs. The answer is multi-faceted: (1) Requirements for getting into vocational technical schools exclude the less able students. (2) Though academic courses are increasingly available at vocational schools, they do not compare in variety nor, with the notable exception of Saul Agricultural High School, in quality with those offered at comprehensive high schools. Thus students who expect to go on to college and who have been successful academically are reluctant to enter vocational-technical schools. (3) Adverse pressure from parents and school counselors often discourages middle class students from choosing vocational education programs. (4) Furthermore, the costs to the school district of educating students in comprehensive high schools is only 60 to 70 percent of the costs per average daily attendance in vocational high schools (Stromsdorfer et. al., 1968). (5) Finally, one of the most important reasons that more students do not choose vocational education programs in high school is that the occupational aspirations held by students in the eighth and ninth grades, when the choice of high school is being made, often do not correspond to any of the 14 vocational

education clusters in which programs are offered at Philadelphia vocational-technical high schools. Thus, the finding that labor market requirements favor the expansion and further upgrading of vocational-technical education programs is only one part of the story. Another very important part is to be found in the occupational aspirations of the students themselves.

Educational Requirements and the Occupational Aspirations of High School Students

The occupational aspirations of students in grades eight through eleven were obtained from responses to the question, "What kind of job would you like to have when you are about 35 years old? You may answer housewife if that is what you would like to be doing." The determinants of these aspirations--the factors that account for differences in career goals among students--will be analyzed below in Chapter 2. Our concern here is to ascertain the educational requirements associated with the students' aspirations. Additionally, we are interested in determining whether the aspirations of students are realizeable, given current labor market conditions, and whether the aspirations of tenth and eleventh grade students are more realistic than those of eighth and ninth grade students. Table 1.3 reports the occupational aspirations of eighth and ninth grade students by sex, while Table 1.4 gives the same information for tenth and eleventh grade students. The distribution of occupational aspirations by race for the two groups of students is given in tables 1.5 and 1.6. As expected, younger students are more likely to aspire to glamorous or high status, financially rewarding occupations. Medical professional is the modal occupational choice of the younger students, with nearly 9 percent of the sample aspiring to be doctors, dentists, optometrists, pharmacists or veterinarians. Six percent of these students want to be

athletes while 7.2 percent favor careers as actors, writers, artists, entertainers or models. Judge or lawyer is the career choice of 5.6 percent of the eighth and ninth grade students.

Among the eighth and ninth grade students women as well as men aspire to these high status jobs. Except for the fact that nearly all those aspiring to be athletes are male, female students in the eighth and ninth grades were as likely as their male counterparts to desire these prestigious and rewarding careers. Nevertheless, considerable sex-role stereotyping in the choice of careers is evident in the responses of these students. Among eighth and ninth graders, almost 50 percent of the young women aspire to the typically female occupations--nursing (9.5 percent), health technician (3.2 percent), social worker (1.8 percent), teacher (7.0 percent), hairdresser (3.0 percent), health or other service worker (6.0 percent), secretary (10.9 percent), typist or clerical worker (7.0 percent). Very few women aspire to the typically male occupations in science or business, or to the skilled trades. Less than 10 percent of these young women want jobs as scientists, engineers, architects, computer programmers, administrators, proprietors, technicians, construction or other craft workers, machinists, mechanics, transportation equipment operatives, operators of other equipment, or as police or fireman. By comparison, 50 percent of the young men aspire to these occupations. Conversely, only slightly more than 8 percent of these young men desire jobs in the predominantly female occupations listed above.

Some important differences in occupational aspirations emerge when the choices of tenth and eleventh grade students are compared with those of eighth and ninth graders. As expected, the aspirations of the older group are somewhat lower, reflecting the actual distribution of jobs to a greater

Table 1.3

OCCUPATIONAL ASPIRATIONS OF 8TH AND 9TH GRADE STUDENTS, BY SEX

Occupational Aspiration	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Housewife	45	4.2	1	0.2	44	7.7
Accountant	14	1.3	5	1.0	9	1.6
Architect	12	1.1	11	2.2	1	0.2
Computer programmers	9	0.8	8	1.6	1	0.2
Computer analyst, specialist	4	0.4	1	0.2	3	0.5
Engineer	23	2.2	19	3.8	4	0.7
Judge, lawyer	60	5.6	28	5.6	32	5.6
Scientists	19	1.8	13	2.6	6	1.1
Doctor, Dentist, Optometrist, Veterinarian	94	8.8	35	7.0	59	10.3
Registered nurse	55	5.1	1	0.2	54	9.5
Other health specialist or technician	21	2.0	3	0.6	18	3.2
Psychologist	12	1.1	1	0.2	11	1.9
Social worker	11	1.0	1	0.2	10	1.8
Teacher	54	5.1	14	2.8	40	7.0
Technician	19	1.8	19	3.8	0	0.0
Writer, artist, entertainer, model	63	6.0	28	5.6	35	6.1
Actor	13	1.2	5	1.0	8	1.4
Athlete	64	6.0	59	11.9	5	0.9
Other professional, technical	14	1.3	9	1.8	5	0.9
Manager, administrator, official	57	5.3	38	7.6	19	3.3
Sales worker	11	1.0	6	1.2	5	0.9
Secretary	63	6.0	1	0.2	62	10.9

Occupational Aspiration	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Typist	4	0.4	0	0.0	4	0.7
Clerical worker, cashier, teller, stenographer, etc.	47	4.4	11	2.2	36	6.3
Construction craft worker	37	3.5	36	7.2	1	0.2
Mechanic, machinist	33	3.1	33	6.6	0	0.0
Misc. Craft worker	31	2.9	23	4.6	8	1.4
Operative exc. transport	14	1.3	10	2.0	4	0.7
Transport equipment operative	17	1.6	16	3.2	1	0.2
Hairdresser	17	1.6	0	0.0	17	3.0
Health service worker	7	0.7	1	0.2	6	1.1
Police and fireman	16	1.5	13	2.6	3	0.5
Misc. Service worker	37	3.5	9	1.8	28	4.9
Farmer	1	0.1	1	0.2	0	0.0
Laborer incl. farm	17	1.6	12	2.4	5	0.9
Not codable	34	3.2	16	3.2	18	3.2
Don't know	19	1.8	10	2.0	9	1.6
All Occupations	1,068	100.0	497	100.0	571	100.0

Table 1.4

OCCUPATIONAL ASPIRATIONS OF 10TH AND 11TH GRADE STUDENTS, BY SEX

Occupational Aspiration	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Housewife	55	4.3	0	0.0	55	7.5
Military	12	.9	10	1.8	2	.3
Accountant	43	3.3	18	3.2	25	3.4
Architect	9	.7	8	1.4	1	.1
Computer programmer	12	.9	4	.7	8	1.1
Computer analyst, specialist	4	.3	3	.5	1	.1
Engineer	34	2.6	30	5.4	4	.5
Judge, Lawyer	44	3.4	16	2.9	28	3.8
Scientist	23	1.8	11	2.0	12	1.6
Economist, Sociologist	3	.2	3	.5	0	0.0
Doctor, Dentist, Optometrist, Vetinarian Pharmicist	69	5.3	33	5.9	36	4.9
Registered Nurse	53	4.1	3	.5	50	6.8
Other health specialist or technician	28	2.2	8	1.4	20	2.7
Psychologist	10	.8	2	.4	8	1.1
Social Worker	15	1.2	1	.2	14	1.9
Teacher	43	3.3	14	2.5	29	4.0
Technician	32	2.5	28	5.0	4	.5
Writer, Artist, Entertainer, Model	90	7.0	41	7.3	49	6.7

Occupational Aspiration	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Actor	8	.6	4	.7	4	.5
Athlete	25	1.9	22	3.9	3	.4
Other professional, technical	28	2.2	14	2.5	14	1.9
Manager, Administrator, Official	81	6.3	48	8.6	33	4.5
Buyers, wholesale and retail trade	1	.1	0	0.0	1	.1
Salesworker	12	.9	3	.5	9	1.2
Secretary	125	9.7	0	0.0	125	17.1
Typist	14	1.1	0	0.0	14	1.9
Clerical worker, cashier, teller, stenographer, etc.	102	7.9	11	2.0	91	12.4
Construction craft worker	51	3.9	48	8.6	3	.4
Mechanic, machinist	46	3.6	46	8.2	0	0.0
Misc. craft worker	29	2.2	23	4.1	6	.8
Operative exc. transport	4	.3	2	.4	2	.3
Transport Equipment Operative	20	1.5	20	3.6	0	0.0
Hairdresser	18	1.4	2	.4	16	2.2
Health service worker	9	.7	0	0.0	9	1.2
Police and fireman	37	2.9	30	5.4	7	1.0
Misc. service worker	26	2.0	2	.4	24	3.3
Laborer	19	1.5	17	3.0	2	.3
Not codable	30	2.3	20	3.6	10	1.4
Don't know	28	2.2	13	2.3	15	2.0
All occupations	1,292	100.0	558	100.0	734	100.0

Table 1.5

OCCUPATIONAL ASPIRATIONS OF 8TH AND 9TH GRADE STUDENTS, BY RACE

Occupational Aspiration	Total		White		Black		Other	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Housewife	45	4.2	27	7.1	16	2.5	2	3.4
Accountant	14	1.3	5	1.3	9	1.4	0	0.0
Architect	12	1.1	2	0.5	10	1.6	0	0.0
Computer programmers	9	0.8	5	1.3	4	0.6	0	0.0
Computer analyst, specialist	4	0.4	3	0.8	1	0.2	0	0.0
Engineer	23	2.2	6	1.6	16	2.5	1	1.7
Judge, lawyer	60	5.6	12	3.2	46	7.3	2	3.4
Scientists	19	1.8	10	2.6	9	1.4	0	0.0
Doctor, Dentist, Optometrist, Vetinarian	94	8.8	29	7.7	59	9.4	6	10.3
Registered nurse	55	5.1	12	3.2	38	6.0	5	8.6
Other health specialist or technician	21	2.0	6	1.6	14	2.2	1	1.7
Psychologist	12	1.1	5	1.3	7	1.1	0	0.0
Social worker	11	1.0	4	1.1	7	1.1	0	0.0
Teacher	54	5.1	16	4.2	37	5.9	1	1.7
Technician	19	1.8	7	1.8	12	1.9	0	0.0
Writer, artist, entertainer, model	63	6.0	25	6.6	32	5.1	6	10.3
Actor	13	1.2	8	2.1	4	0.6	1	1.7
Athlete	64	6.0	22	5.8	39	6.2	3	5.2
Other professional, technical	14	1.3	7	1.8	6	1.0	1	1.7
Manager, administrator, official	57	5.3	15	4.0	41	6.5	1	1.7
Sales worker	11	1.0	3	0.8	8	1.3	0	0.0
Secretary	63	6.0	22	5.8	37	5.9	4	6.9

Occupational Aspiration	Total		White		Black		Other	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Typist	4	0.4	0	0.0	2	0.3	2	3.4
Clerical worker, cashier, teller, stenographer, etc.	47	4.4	14	3.7	29	4.6	4	6.9
Construction craft worker	37	3.5	20	5.3	16	2.5	1	1.7
Mechanic, machinist	33	3.1	12	3.2	18	2.9	3	5.2
Misc. Craft worker	31	2.9	11	2.9	20	3.2	0	0.0
Operative exc. transport	14	1.3	6	1.6	7	1.1	1	1.7
Transport equipment operative	17	1.6	5	1.3	11	1.7	1	1.7
Hairdresser	17	1.6	9	2.4	7	1.1	1	1.7
Health service worker	7	0.7	4	1.0	3	0.5	0	0.0
Police and fireman	16	1.5	9	2.4	5	0.8	2	3.4
Misc. Service worker	37	3.5	18	4.7	16	2.5	3	5.2
Farmer	1	0.1	1	0.3	0	0.0	0	0.0
Laborer incl. farm	17	1.6	10	2.6	7	1.1	0	0.0
Not codable	17	1.6	4	1.1	11	1.7	2	3.4
Don't know	36	3.4	5	1.3	27	4.3	4	6.9
All Occupations	1,068	100.0	379	100.0	631	100.0	58	100.0

Table 1.6

OCCUPATIONAL ASPIRATIONS OF 10TH AND 11TH GRADE STUDENTS, BY RACE

Occupational Aspiration	Total		White		Black		Other	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Housewife	55	4.3	34	8.1	17	2.2	4	4.5
Military	12	0.9	4	1.0	8	1.0	0	0.0
Accountant	43	3.3	12	2.9	27	3.4	4	4.5
Architect	9	0.7	2	0.5	7	0.9	0	0.0
Computer programmer	12	0.9	4	1.0	8	1.0	0	0.0
Computer analyst, specialist	4	0.3	1	0.2	3	0.4	0	0.0
Engineer	34	2.6	8	1.9	24	3.1	2	2.3
Judge, Lawyer	44	3.4	12	2.9	31	4.0	1	1.1
Scientist	23	1.8	14	3.3	6	0.8	3	3.4
Economist, Sociologist	3	0.2	2	0.5	1	0.1	0	0.0
Doctor, Dentist Optometrist, Vetinarian Pharmicist	69	5.3	19	4.5	44	5.6	6	6.8
Registered Nurse	53	4.1	13	3.1	38	4.8	2	2.3
Other health specialist or technician	28	2.2	7	1.7	19	2.4	2	2.3
Psychologist	10	0.8	3	0.7	6	0.8	1	1.1
Social worker	15	1.2	4	1.0	11	1.4	0	0.0
Teacher	43	3.3	13	3.1	28	3.6	2	2.3
Technician	32	2.5	8	1.9	21	2.7	3	3.4
Writer, Artist, Entertainer, Model	90	7.0	34	8.1	51	6.5	5	5.7
Actor	8	0.6	4	1.0	3	0.4	1	1.1
Athlete	25	1.9	4	1.0	20	2.6	1	1.1
Other professional, technical	28	2.2	13	3.1	13	1.7	2	2.3

Occupational Aspiration	Total		White		Black		Other	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Manager, administrator, official	81	6.3	18	4.3	60	7.7	3	3.4
Buyers, wholesale and retail trade	1	0.1	0	0.0	1	0.1	0	0.0
Sales worker	12	0.9	6	1.4	5	0.6	1	1.1
Secretary	125	9.7	39	9.3	74	9.4	12	13.6
Typist	14	1.1	1	0.2	13	1.7	0	0.0
Clerical worker, cashier, teller, stenographer, etc.	102	7.9	16	3.8	77	9.8	9	10.2
Construction craft worker	46	3.6	20	4.8	22	2.8	4	4.5
Mechanic, machinist	46	3.6	22	5.2	20	2.6	4	4.5
Misc. Craft worker	29	2.2	12	2.9	14	1.8	3	3.4
Operative exc. transport	9	0.7	3	0.7	5	0.6	1	1.1
Transport equipment operative	20	1.5	9	2.1	10	1.3	1	1.1
Hairdresser	18	1.4	9	2.1	9	1.1	0	0.0
Health service worker	9	0.7	1	0.2	8	1.0	0	0.0
Police and fireman	37	2.9	14	3.3	18	2.3	5	5.7
Misc. service worker	26	2.0	7	1.7	19	2.4	0	0.0
Laborer	19	1.5	5	1.2	13	1.7	1	1.1
Not codable	9	0.7	6	1.4	3	0.4	0	0.0
Don't know	49	3.8	17	4.0	27	3.4	5	5.7
All Occupations	1,292	100.0	420	100.0	784	100.0	88	100.0

extent than do the aspirations of the younger students. The medical professions for example continue to be attractive, but they are the choice of only 5.3 percent of the older students as compared with 8.8 percent of the younger ones. And less than 2 percent of the older students want to be athletes. A comparison of the proportions of older and younger students desiring the most glamorous or prestigious occupations indicates some scaling down of aspirations as the students mature. This result is consistent with the findings of other studies (cf. Jencks, 1972 or Parnes et al., 1969).

A comparison of the occupational aspirations of male students in the tenth and eleventh grades with those in the earlier grades indicates that the decline in the proportion aspiring to be doctors, lawyers, judges, athletes, managers and proprietors is balanced by modest increases in a variety of occupational categories. These include engineer, other professional or technical worker, construction craft worker, mechanic, machinist, policeman and fireman. For the female student, however, dramatic changes in aspirations are evident. The proportion of young women aspiring to secretarial positions jumps from less than 11 percent in eighth and ninth grade to more than 17 percent in tenth and eleventh grade. The proportion who want jobs in clerical or related trades virtually doubles, going from 6.3 percent in the earlier grades to 12 percent in the later grades. For the older women students the modal occupation is no longer medical professional as it was in eighth and ninth grade; it is secretary. The decline in the proportion of women aspiring to careers in medicine (from 10.3 percent of the younger women to 4.9 percent

of the older) and in law (from 5.6 to 3.8 percent) is, however, only part of the story. The proportion of older female students aspiring to the better-paying, higher status jobs in the typically female occupations is also lower than it is for the younger women. Thus, only 9.5 percent of the older female students aspire to jobs as registered nurses or other health specialists as compared with 13.1 percent of the younger women. Similarly, only 4 percent of the older women want to be teachers while 7.0 percent of the younger women chose this occupation.

It is interesting to note that despite the important changes in the occupational aspirations of young women as they mature, the proportion aspiring to be housewives has remained remarkably constant, with 7.7 percent of the eighth and ninth grade women and 7.5 percent of those in tenth and eleventh grade making this choice. Just as important, the proportion who expect* to be housewives at age 35, whether or not this is what they desire, is also unchanged -- 12.8 percent of the younger women as compared with 12.3 percent of the older. These figures imply a planned labor force participation rate among these young women in the range of 87 to 92 percent.

We can speculate about the reasons for the differential decline in occupational aspirations of male and female students as they move from the earlier to the later grades. One possibility is that young women, as they mature, become more knowledgeable

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*These figures are obtained from responses to the question "Sometimes it is not possible to get the job that you would most like. Realistically, what job or kind of job do you think you will have when you are 35 years old? You may answer housewife if that is what you think you will be doing."

and develop a more realistic assessment of the occupational opportunities available to them. Given the extensive sex-segregation of occupations that continues to characterize the American economy, this downward revision of their aspirations may be an entirely reasonable accommodation to circumstances. Alternatively, these young women may be unduly influenced by out-moded ideas about appropriate roles for women. Social pressure or lack of encouragement from family and friends, perhaps even from teachers or guidance counselors, may act to discourage young women from preparing to enter traditionally male trades or professions. Peer pressure may discourage teen-age women from choosing shop courses. A related possibility is that lack of academic success, particularly in mathematics or the natural sciences (traditionally viewed as areas of "natural" male superiority) may have discouraged some of the women from pursuing careers for which knowledge of these subjects is a prerequisite (cf. Hilton and Berglund, 1971 and Fennema, 1977). Finally, an increasing awareness of the financial costs associated with preparing for high level occupations, may have discouraged a disproportionate number of women from pursuing such careers.

An examination of the occupational aspirations of both groups of high school students by race yields the finding that black students are more likely than white students to aspire to financially rewarding high status jobs. Among the younger students, professional and managerial occupations were the goal of 62.5 percent of the black students and 52.5 percent of the white students (derived from Table 1.5). Medical professional, which is the modal category for eighth and ninth graders, was the choice of 9.4 percent of the blacks and 7.7 percent of the whites. Young black students were more than twice as likely as

their white classmates to aspire to the legal professions (7.3 percent as compared with 3.2 percent). They were also more likely to aspire to be architects, engineers, registered nurses, teachers or managers. Moreover, black students were as likely as white to choose to be accountants, psychologists, social workers, technicians, athletes or secretaries. It should be noted that only 2.5 percent of the younger black students wish to be housewives as compared with 7.1 percent of the white.

The downward revision of occupational aspirations as the students mature can be observed again in a comparison of Tables 1.5 and 1.6. The decline in black aspirations is somewhat steeper than in white aspirations, though black tenth and eleventh grade students still have somewhat higher aspirations than their white counterparts. Nearly 52 percent of black tenth and eleventh graders desire professional or managerial occupations as compared with about 47 percent of the white.

Researchers have consistently observed higher occupational aspirations among black high school students than among white (Gordon, 1977). This is usually attributed to a less realistic assessment on the part of black students of the actual content of jobs and of the requirements for successful entry into upper level jobs. A battery of questions measuring the student's knowledge of the world of work was included in the interview schedule administered to the tenth and eleventh grade students. Our results, as reported below in Chapter 4, confirm that black students do in fact know less about certain common kinds of work and about the amounts of education these jobs require.

Students' Occupational Aspirations and Expectations by Broad Occupational Groupings

In collecting statistics about jobs and occupations, the U.S. Census Bureau uses a breakdown in which jobs are categorized most broadly as white collar, blue collar, service or farm. White collar occupations are further subdivided into professional and technical, managers and administrators, sales workers and clerical workers. Blue collar occupations are divided into craft and kindred, operatives and laborers. The two major surveys of employment in this country are the U.S. Census, taken every ten years, and the monthly Current Population Survey (CPS) based on a much smaller but more carefully interviewed sample. Both of these surveys utilize the broad occupational categories just described. For purposes of comparability with national data generated by these surveys, therefore, we have aggregated both the occupational aspirations and expectations of Philadelphia high school students into these same categories.

Occupational aspirations and occupational expectations by grade in school are presented in Table 1.7. In Tables 1.8 through 1.11 the effects of sex and race upon these aspirations and expectations are presented.

The increasing realism of student occupational goals as students mature is clearly evident in the aggregated data. As Table 1.7 indicates, between eighth grade and eleventh grade the proportion of students aspiring to the professions declines more than 20 percent, from about 65 percent to about 43 percent. Similar declines can be observed for male and female students (Tables 1.10 and 1.11) and for black students (Table 1.9). The decline for white students is somewhat more precipitous, going from 64.1

Table 1.7

TOTAL SAMPLE

OCCUPATIONAL ASPIRATIONS % of each grade					OCCUPATIONAL EXPECTATIONS % of each grade				
	8	9	10	11		8	9	10	11
Professional & Technical	65.3	44.5	47.6	42.9	Professional & Technical	50.1	34.3	32.3	32.6
Managers & Administrators	6.3	4.7	4.6	8.2	Managers & Administrators	6.6	4.7	5.0	6.6
Sales Workers	1.1	1.0	0.8	1.4	Sales Workers	1.8	2.0	2.1	2.0
Clerical Workers	9.3	14.8	18.8	20.1	Clerical Workers	9.2	13.8	16.5	17.7
Craft & Kindred	6.1	13.6	8.4	10.4	Craft & Kindred	4.6	9.8	7.8	9.1
Operatives	2.7	3.1	2.5	2.7	Operatives	3.0	3.9	3.1	3.0
Laborers	0.8	2.3	1.3	1.1	Laborers	1.2	2.0	0.7	0.8
Service Workers	5.7	8.7	9.1	5.8	Service Workers	5.4	6.7	7.1	7.0
Housewives	2.9	5.8	4.3	4.4	Housewives	6.2	8.4	7.3	7.9
Don't Know	0.8	2.5	2.6	1.8	Don't Know	13.5	16.3	18.8	14.4
Military	---	---	0.7	1.2	Military	---	---	1.4	0.8

Table 1.8

WHITE STUDENTS ONLY

OCCUPATIONAL ASPIRATIONS % of each grade					OCCUPATIONAL EXPECTATIONS % of each grade				
	8	9	10	11		8	9	10	11
Professional & Technical	64.1	40.1	48.4	36.2	Professional & Technical	44.6	26.5	28.5	25.4
Managers & Administrators	7.0	2.6	3.6	5.3	Managers & Administrators	7.9	4.6	3.3	5.2
Sales Workers	0.7	0.9	0.5	3.2	Sales Workers	0.7	2.7	1.9	2.9
Clerical Workers	6.3	11.6	13.1	14.4	Clerical Workers	6.5	11.4	10.7	14.5
Craft & Kindred	6.3	14.7	10.4	17.0	Craft & Kindred	5.8	10.0	7.0	13.9
Operatives	2.1	3.4	2.7	3.2	Operatives	2.9	2.7	3.3	2.9
Laborers	0.7	3.9	1.4	0.5	Laborers	0.7	3.2	0.9	0.6
Service Workers	8.5	12.1	9.0	6.4	Service Workers	5.8	9.6	6.5	7.5
Housewives	4.2	9.1	8.6	8.0	Housewives	10.8	11.4	12.6	11.0
Don't Know	0.0	1.7	2.3	3.7	Don't Know	14.4	17.8	24.3	13.9
Military	---	---	0.0	2.1	Military	---	---	0.9	2.3

Table 1.9

BLACK STUDENTS ONLY

	OCCUPATIONAL ASPIRATIONS % of each grade					OCCUPATIONAL EXPECTATIONS % of each grade			
	8	9	10	11		8	9	10	11
Professional & Technical	66.2	47.6	49.1	45.3	Professional & Technical	52.7	40.9	35.0	35.0
Managers & Administrators	6.9	6.6	5.3	10.1	Managers & Administrators	6.3	4.9	5.6	7.2
Sales Workers	1.5	1.1	0.9	0.7	Sales Workers	2.5	1.1	2.2	1.8
Clerical Workers	8.7	15.1	20.0	22.5	Clerical Workers	7.9	12.1	16.9	16.6
Craft & Kindred	5.7	12.9	6.5	7.5	Craft & Kindred	4.4	9.8	8.4	6.6
Operatives	3.0	3.0	2.6	2.1	Operatives	2.5	4.2	2.8	2.8
Laborers	0.9	1.1	1.2	1.4	Laborers	1.6	1.1	0.6	1.0
Service Workers	4.2	5.9	9.4	5.6	Service Workers	5.0	4.5	7.5	7.2
Housewives	1.8	3.7	1.5	2.8	Housewives	3.8	4.9	4.1	7.2
Don't Know	1.2	3.0	2.4	0.9	Don't Know	13.2	16.3	15.0	14.3
Military	---	---	1.2	0.9	Military	---	---	1.9	0.3

Table 1.10

MALE STUDENTS ONLY

	OCCUPATIONAL ASPIRATIONS % of each grade					OCCUPATIONAL EXPECTATIONS % of each grade			
	8	9	10	11		8	9	10	11
Professional & Technical	63.1	45.6	52.4	45.4	Professional & Technical	47.4	34.3	36.4	33.7
Managers & Administrators	9.4	6.9	6.4	11.4	Managers & Administrators	11.2	7.4	8.3	10.0
Sales Workers	1.3	1.2	0.4	0.7	Sales Workers	2.3	2.2	1.6	2.1
Clerical Workers	2.6	2.4	1.5	2.6	Clerical Workers	1.4	3.5	1.6	2.9
Craft & Kindred	10.7	27.0	17.2	24.4	Craft & Kindred	8.8	17.8	16.2	21.7
Operatives	4.7	6.0	4.9	5.2	Operatives	5.6	6.5	5.5	4.2
Laborers	1.3	3.6	3.0	2.6	Laborers	2.8	2.6	1.6	2.1
Service Workers	5.6	4.0	9.4	4.1	Service Workers	4.7	3.0	6.7	5.0
Housewives	0.0	0.4	0.0	0.0	Housewives	0.5	0.4	0.0	0.0
Don't Know	1.3	2.8	3.4	1.5	Don't Know	15.3	22.2	19.4	17.1
Military	---	---	1.5	2.2	Military	---	---	2.8	1.2

of the eighth grade students to 36.2 percent of those in eleventh grade. Consistent with our earlier observations about female occupational plans, the proportion of students aspiring to clerical occupations increases from about 9 percent to about 20 percent with advancing grade for the sample as a whole; for female students, the proportion planning to enter clerical occupations more than doubles, from 13.6 percent of eighth grade women to 32.4 percent of those in eleventh grade (Table 1.11). The increase in the proportion aspiring to craft occupations, while not so large, is almost as dramatic as the increase in the proportions desiring clerical jobs. For the sample as a whole, the proportion aspiring to jobs as craftsmen increases from 6.1 to 10.4 percent. For the young men the proportion more than doubles -- from 10.7 percent of eighth grade males to 24.4 percent of those in eleventh grade. The exclusion of blacks from craft occupations which, despite affirmative action programs and civil rights legislation, has persisted through the 1970's (Williams, 1979) seems to have had a major impact on the occupational aspirations of black adolescents. The proportion of black students desiring such jobs increased only slightly, from 5.7 percent of the eighth graders to 7.5 percent of those in eleventh grade. Among white students, however, the proportion aspiring to craft occupations nearly tripled, from 6.3 percent of the eighth graders to 17.0 percent of eleventh grade students. This disparity in occupational aspirations of black and white students in eleventh grade emerges despite the similarities in the proportions of black and white eighth and ninth graders

desiring craft jobs. In eighth grade, as noted, the proportion of blacks is 5.7 percent as compared with 6.3 percent of whites; in ninth grade, the proportions are 12.9 and 14.7 percent respectively (Tables 1.8 and 1.9).

As the data clearly show, occupational expectations are skewed more heavily toward the less prestigious occupations than are occupational aspirations. Among all students in our sample, the proportion expecting to attain careers in the professions is 50.1 percent in eighth grade, declining to 32.6 percent by eleventh grade (Table 1.7). A similar decline, from 52.7 percent in eighth grade to 35 percent in eleventh, can be observed for black students as well (Table 1.9). White students, as previously discussed, have consistently lower expectations than do black students. The decline in the proportion of white students expecting professional jobs is from 44.6 percent in eighth grade to 25.4 percent in eleventh.

Surprisingly few of the students responded "don't know" when asked about their occupational aspirations. The proportion varied from a low of 0.8 percent of eighth graders to a high of 2.6 percent of tenth graders. (The highest percentage of "don't knows" occurred among white eleventh graders, 3.7 percent of whom gave this answer.) The proportions of students in each category responding "don't know" to the question about occupational expectations were substantially higher. For the total sample (see Table 1.7) the proportions answering "don't know" ranged from 13.5 percent (eighth grade) to 18.8 percent (tenth grade).

An interesting phenomenon is the decline that occurs between tenth and eleventh grade in the proportion who don't know what job they expect to have as adults. For the total sample, the proportion declines from 18.8 percent in tenth grade to 14.4 percent in eleventh. A similar drop, from 18.3 percent to 12.6 percent can be observed for the women in our sample. Among white students, the drop is precipitous — from 24.3 percent of tenth grade students to 13.9 percent of eleventh. This is due to two factors. There is undoubtedly a selective drop out process at work. It is likely that a disproportionate number of students who are uncertain about their future plans can be found among those who drop out of school in eleventh grade. Secondly, as the students approach their final year in high school, it is reasonable to suppose that they feel a greater necessity to develop more definite expectations about their future careers. Both of these considerations suggest that tenth grade is an important year in which to provide career guidance to students.

A comparison of those who answered "don't know" by sex (Tables 1.10 and 1.11) shows that, with the exception of tenth grade, female students were substantially less likely than male students to give this answer. In tenth grade 18.3 percent of the young women answered "don't know" as compared with 19.4 percent of the young men. In the remaining three grades the proportion of young women giving this answer was slightly less than 13 percent, while the proportions of young men giving this reply

were 15.3 percent in eighth grade, 22.2 percent in ninth grade and 17.1 percent in eleventh grade. One explanation of the consistently lower proportions of young women who reply "don't know" when asked about occupational expectations is that the young women have the option of replying "housewife" if they are uncertain about future chances of achieving their goals. Clearly, many more women expect to be housewives than have such aspirations (Table 1.11). In eighth grade 5.1 percent aspire to be housewives, but 10.5 percent expect that is what they will be doing; in ninth grade the proportions are 10.7 and 14.5 respectively; in tenth grade they are 7.7 and 13.0 percent, and in eleventh grade the proportions are 7.5 and 13.2 percent.

Table 1.12 shows the percentage of the work force in each of the census categories in 1972 and 1978, and gives projections for 1985. Actual employment in professional and technical jobs in 1978 and projected employment in these occupations in 1985 both amount to only about 15 percent of total unemployment. Yet more than twice this proportion (32.6 percent) of eleventh graders expect to obtain professional or technical jobs and almost three times this proportion (42.9 percent) aspire to them. With respect to the service occupations, the figures are reversed. Whereas 13.6 percent of 1978 employment and 14.2 percent of projected employment in 1985 is in service jobs, less than 6 percent of eleventh grade students aspire to such jobs and only 7 percent expect to have them. These occupations exhibit the widest disparity between aspirations or expectations and opportunities, although an overall comparison of Tables 1.7 and 1.12 indicates that the occupational goals of students do not conform very well to the actual employment patterns.

Table 1.11

FEMALE STUDENTS ONLY

	OCCUPATIONAL ASPIRATIONS % of each grade					OCCUPATIONAL EXPECTATIONS % of each grade			
	8	9	10	11		8	9	10	11
Professional & Technical	66.2	43.1	43.8	41.2	Professional & Technical	51.7	34.2	29.1	31.9
Managers & Administrators	4.0	2.8	3.3	6.0	Managers & Administrators	3.0	2.5	2.5	4.4
Sales Workers	1.1	0.7	1.2	1.8	Sales Workers	1.5	1.8	2.5	1.9
Clerical Workers	13.6	23.8	31.1	32.4	Clerical Workers	12.4	18.9	24.8	24.5
Craft & Kindred	1.8	1.4	1.5	0.5	Craft & Kindred	1.1	2.5	1.2	0.8
Operatives	1.1	0.7	0.6	1.0	Operatives	1.1	1.5	0.9	1.9
Laborers	0.4	1.1	0.0	0.0	Laborers	0.0	1.5	0.0	0.0
Service Workers	6.3	12.8	8.9	7.0	Service Workers	6.0	9.8	7.4	8.2
Housewives	5.1	10.7	7.7	7.5	Housewives	10.5	14.5	13.0	13.2
Don't Know	0.4	2.8	2.1	2.1	Don't Know	12.7	12.7	18.3	12.6
Military	---	---	0.0	0.5	Military	---	---	0.3	0.5

Table 1.12

EMPLOYMENT, BY CENSUS CATEGORIES*
(percentage of total employed)

	1972	1978	1985 (projected)
White Collar	47.8	50.1	51.2
Professional & Technical	14.0	15.1	15.1
Managers & Administrators	9.8	10.7	10.8
Sales Workers	6.6	6.3	6.1
Clerical Workers	17.4	17.9	19.2
Blue Collar	35.0	33.3	32.8
Craft & Kindred	13.2	13.1	13.2
Operatives	16.6	15.3	15.0
Laborers	5.2	5.0	4.6
Service Workers	13.4	13.6	14.2
Farmers & Farm Laborers	3.8	3.0	1.8

*SOURCE: 1972 & 1978, Employment & Earnings; 1985, Employment & Training Report of the President, 1978.

Educational Requirements and Occupational Aspirations

The preferred levels of institutional preparation implicit in the occupational aspirations of eighth and ninth grade students is shown in Table 1.13. Table 1.14 presents the same information for those in tenth and eleventh grade. The fact that both male and female students aspire, in large numbers, to high status, remunerative careers is reflected in the associated educational requirements. Nearly equal proportions of young men and women desire jobs that require at least a bachelors degree. Among eighth and ninth grade students, 38.7 percent of the males and 36.8 percent of the females want jobs that require a college degree. Among the older students, the proportion of males desiring jobs that require a college degree increases nearly 5 percent while the proportion of females declines by 2 percent. Thus 43.4 percent of the older male students aspire to jobs requiring a college degree as compared with 34.6 of the older female students.

We note that there has been an increase in the number of male students aspiring to jobs requiring at least a college degree, despite the decline in the number desiring to be doctors, lawyers and judges. This reflects the previously noted finding that the decline in the number of male students desiring jobs requiring post-graduate education is more than offset by small increases in a variety of occupational categories requiring a bachelors degree.

Sex-role stereotyping among youth who aspire to non-professional occupations is reflected in the proportions of male and female students aspiring to jobs that require technical, vocational, business school or

Table 1.13

DISTRIBUTION OF OCCUPATIONAL ASPIRATIONS OF 8TH AND 9TH GRADE STUDENTS BY PREFERRED LEVEL OF INSTITUTIONAL PREPARATION

Preferred Level of Institutional Preparation	Occupational Aspirations					
	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Bachelor's degree or higher	401	37.7	191	38.7	210	36.8
Associate degree	78	7.4	4	0.8	74	13.1
Technical, vocational, business school, or apprenticeship training	223	20.9	136	27.4	94	16.6
High school diploma, incl. high school plus on job training	252	23.6	127	25.6	118	20.7
Less than high school diploma	16	1.5	12	2.4	4	0.7
All Occupations	975	91.1	471	95.0	504	87.8
Housewife	45	4.2	1	0.2	44	7.7
Don't Know	19	1.6	10	1.8	9	1.4
Not Codable	34	3.1	16	3.0	18	3.1
Total	1,068	100.0	497	100.0	571	100.0

Table 1.14

DISTRIBUTION OF OCCUPATIONAL ASPIRATIONS OF
10TH AND 11TH GRADE STUDENTS BY
PREFERRED LEVEL OF INSTITUTIONAL PREPARATION

Preferred Level of Institutional Preparation	Occupational Aspirations					
	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Bachelor's degree or higher	496	38.4	242	43.4	254	34.6
Associate degree	82	6.3	11	2.0	71	9.7
Technical, vocational, business school, or apprenticeship training	350	27.1	181	32.4	169	23.1
High school diploma, incl. high school plus on job training	203	15.7	61	10.9	142	19.4
Less than high school diploma	36	2.8	20	3.5	16	2.1
All occupations	1,167	90.3	516	92.3	651	88.8
Housewife	55	4.3	0	0.0	55	7.5
Military	12	.9	10	1.8	2	.3
Don't know	28	2.2	13	2.3	15	2.0
Not codable	30	2.3	20	3.6	10	1.4
Total	1,292	100.0	558	100.0	734	100.0

apprenticeship training. We found that 27.4 percent of eighth and ninth grade males wanted jobs requiring this level of educational preparation as compared with only 16.6 percent of the females (Table 1.13). Among the older students, 32.4 percent of the males require this level of educational preparation as compared with 23.1 percent of the females (Table 1.8). At the same time, 13.1 percent of the younger and 9.7 percent of the older female students aspire to careers that require an associate degree. This compares with 0.8 percent of the eighth and ninth grade males and 2.0 percent of males in tenth and eleventh grade. Younger female students are somewhat less likely than younger male students to desire jobs that require a high school diploma or less (21.4 percent as compared with 28.0 percent). The situation is reversed for the older students: 21.5 percent of the older female students want jobs that require a high school diploma or less as compared with 14.4 percent of the older male students.

When the distribution of occupational aspirations of students by preferred level of institutional preparation (Tables 1.13 and 1.14) is compared with the distributions of employment and job openings by preferred level of institutional preparation (Table 1.1), it is apparent that the structure of employment opportunities implies that many students will not achieve their career goals. Only 15 percent of the job openings in the years between 1974 and 1985 are in occupations requiring 4 or more years of college education, while 38 percent of the students both in eighth and ninth grade and in tenth and eleventh grade aspire to such occupations. Conversely, 50 percent of the job openings require a high school diploma or less, while only 25 percent of the younger students and 18.5 percent of the older students want to hold such jobs.

The students' educational expectations are shown in Tables 1.15 and 1.16. They were obtained from the responses to the question, "How much education do you think you will get?" Nearly 54 percent of the younger students and 42 percent of the older students surveyed expect to get at least a bachelors degree, a result that exceeds even the optimistic figure of 38 percent implicit in their occupational aspirations. Another 8 percent in each age group anticipate obtaining an associate degree. This scaling down of educational expectations as the students mature is consistent with the evidence from a national longitudinal survey of young men and women (cf., Parnes et al., 1969).

A comparison with the actual behavior of 1976 graduates of the Philadelphia school system suggests that these expectations may not be far out of line. Among the 1974 graduates, 54 percent of those from comprehensive high schools and 35 percent of those from vocational-technical high schools (52 percent of all high school graduates) were enrolled in 2 or 4 year colleges in the semester immediately following high school graduation (School District of Philadelphia, 1977a). The proportion of the 1976 graduates entering two or four year colleges closely approximates the proportion of older students who expect to do the same. The conclusion appears inescapable: many young Philadelphians aspire to professional positions, and enter college in pursuit of this goal, but they are destined to be disappointed by the job opportunities available in the Philadelphia SMSA.

If we consider the occupations in which the Philadelphia high schools offer specialized vocational education (Tables 1.17 and 1.18), we find that 30 percent of the younger students and 40 percent of the older students aspire to such occupations. There is some overlap between this group of

Table 1.15

DISTRIBUTION OF EDUCATIONAL EXPECTATIONS
OF 8TH AND 9TH GRADE STUDENTS

Level of Educational Expectations	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Bachelors degree or higher	572	53.7	275	55.4	297	52.1
Associate degree	85	7.9	47	9.5	38	6.6
Technical, vocational, business school	107	10.0	28	5.6	79	13.8
High school diploma	287	26.8	138	27.6	149	26.1
Less than high school	11	1.0	6	1.2	5	0.9
No answer	6	0.6	3	0.6	3	0.5
Total	1,068	100.0	497	100.0	571	100.0

Table 1.16

DISTRIBUTION OF EDUCATIONAL EXPECTATIONS
OF 10TH AND 11TH GRADE STUDENTS

Level of Educational Expectations	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Bachelors degree or higher	540	41.8	241	43.2	299	40.7
Associate degree	105	8.1	48	8.6	57	7.8
Technical, vocational, business school	282	21.8	105	18.8	177	24.1
High school diploma	335	25.9	148	26.5	187	25.5
Less than high school	21	1.6	11	2.0	10	1.4
No answer	9	.7	5	.9	4	.5
Total	1,292	100.0	558	100.0	734	100.0

students and the group of students that expects to go to college, since occupations in several of the vocational education clusters (particularly in communications, business data processing, and health services) require a two or four year college education. The proportion desiring jobs included in the fourteen vocational education clusters, however, falls far short of the corresponding proportion of job openings. Table 1.2 shows that 68.4 percent of the job openings between 1974 and 1985 fall in this category. A comparison of Tables 1.11 and 1.12 with Table 1.2 shows that the personal services cluster accounts for 13.7 percent of the job openings but only about 5.5 percent of the younger students' aspirations and 4.3 percent of the older; while the health services cluster accounts for 9.4 percent of the job openings and only 1.1 percent of both the younger and older students' aspirations.

It is easy to understand the reluctance of students to enter these occupational fields, since openings in these fields have often been in low wage, low status jobs lacking opportunities for advancement. Not coincidentally, many of these jobs are in traditional areas of employment for women and are not very attractive to young men planning careers.

One response to this situation on the part of students can be observed in the large proportion who plan to migrate out of the Philadelphia area after completing their educations. About one-third of the younger students and more than a quarter of the older ones plan to leave the Philadelphia vicinity (Table 1.10). The proportions of male students planning to leave (40.0 percent of the younger and 31.1 percent of the older) is much higher than the proportions of female students (28.2 and 23.7 percent respectively). While numerous social and cultural forces are at work here, one must include among these forces the possibility that the large number of

Table 1.17

DISTRIBUTION OF OCCUPATIONAL
ASPIRATIONS OF 8TH AND 9TH GRADE STUDENTS
BY VOCATIONAL EDUCATION CLUSTER AND SEX

Vocational Education Cluster	Total		Male		Female	
	Number of Students	Percent of Total	Number of Students	Percent of Total	Number of Students	Percent of Total
(1) Power mechanics	25	2.3	25	5.0	0	0.0
(2) Manufacturing electro-mechanical	17	1.6	17	3.4	0	0.0
(3) Building construction and maintenance	44	4.1	41	8.3	2	0.5
(4) Communications	7	0.7	6	1.2	1	0.2
(5) Personal services	59	5.5	24	4.8	35	6.1
(6) Metal processing	8	0.8	8	1.6	0	0.0
(7) Business data processing	21	2.0	11	2.2	10	1.7
(8) Secretarial	74	6.9	1	0.2	73	12.7
(9) Distribution	12	1.1	5	1.0	7	1.2
(10) Clerical	22	2.1	6	1.2	16	2.8
(11) Health services	12	1.1	1	0.2	11	1.9
(12) Apparel trade	13	1.2	5	1.0	8	1.4
(13) Drafting	5	0.5	5	1.0	0	0.0
(14) Agriculture	3	0.3	3	0.6	0	0.0
All Clusters	322	30.1	158	31.9	164	28.6
Other	746	69.9	339	68.1	407	71.4
TOTAL	1,068	100.0	497	100.0	571	100.0

Table 1.18

DISTRIBTUION OF OCCUPATIONAL
ASPIRATIONS OF 10TH AND 11TH GRADE STUDENTS
BY VOCATIONAL EDUCATION CLUSTER AND SEX

Vocational Education Cluster	Total		Male		Female	
	Number of Students	Percent of Total	Number of Students	Percent of Total	Number of Students	Percent of Total
(1) Power mechanics	30	2.3	30	5.4	0	0.0
(2) Manufacturing electro-mechanical	30	2.3	28	5.0	2	0.3
(3) Building construction and maintenance	59	4.6	56	10.0	3	0.4
(4) Communications	25	1.9	11	2.0	14	1.9
(5) Personal services	72	5.6	41	7.3	31	4.2
(6) Metal processing	14	1.1	14	2.5	0	0.0
(7) Business data processing	29	2.2	7	1.3	22	3.0
(8) Secretarial	158	12.2	0	0.0	158	21.5
(9) Distribution	12	0.9	2	0.4	10	1.4
(10) Clerical	55	4.3	7	1.3	48	6.5
(11) Health services	14	1.1	1	0.2	13	1.8
(12) Apparel trade	5	0.4	0	0.0	4	0.7
(13) Drafting	10	0.8	9	1.6	1	0.1
(14) Agriculture	0	0.0	0	0.0	0	0.0
All Clusters	513	39.7	206	36.9	307	41.8
Other	779	60.3	352	63.1	427	58.2
TOTAL	1,292	100.0	558	100.0	734	100.0

Table 1.19

EXPECTED AREA OF RESIDENCE AFTER LEAVING SCHOOL
8th and 9th grade students

Location	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Stay in Philadelphia or surrounding suburbs	653	66.3	272	60.0	381	71.8
Leave Philadelphia area	332	33.7	182	40.0	150	28.2
Undecided or uncodable	83	7.8	43	8.6	40	7.0
TOTAL	1,068	100.0	497	100.0	571	100.0

10th and 11th grade students

Location	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
Stay in Philadelphia or surrounding suburbs	918	73.1	372	68.9	546	76.3
Leave Philadelphia area	338	26.9	168	31.1	170	23.7
Undecided or uncodable	36	2.9	18	3.3	18	2.5
TOTAL	1,256	100.0	540	100.0	716	100.0

job openings in typically female occupations is perceived by the young men as a lack of opportunity for them. Whatever the cause, a substantial percentage of students being educated in Philadelphia plan to seek employment elsewhere. A provincial view of the role of the Philadelphia schools is, therefore, inappropriate.

Contrasting student aspirations with projected job openings places the dilemna confronting educators in stark relief. Eli Ginzberg (1977) found that seven out of every ten new jobs created in the American economy in recent years has been a poor job in terms of wages paid, skills required and opportunities for advancement offered. It is not surprising, then, that some educational planners have estimated that the annual surplus of college graduates nationally will reach 700,000 by 1985 (O'Toole, 1977:53). How are the schools to respond to the failure of the job market to supply meaningful jobs in sufficient numbers? Clearly the schools cannot interpret fulfilling their manpower training function to mean that they should actively strive to reduce student aspirations or lessen the motivation of students to learn.

The problem confronting the schools was stated succinctly in a recent article on schooling and socioeconomic attainment (Griffin and Alexander, 1978:341): "Advanced capitalist societies, characterized as they are by a meritocratic state ideology, a knowledge-intensive market economy, the ethos of productivity and efficiency, and structured social inequality, place extensive and possibly contradictory demands upon their formal educational institutions." Griffin and Alexander go on to observe that schools are expected to do more than prepare youth for adult roles -- they are expected to identify and train adolescents for what are thought to be appropriate careers and they are expected to provide economically disadvantaged young people with the cognitive and noncognitive skills necessary

for economic success. Ideally, schooling is supposed to be structured so that it simultaneously facilitates individual achievement and meets the manpower needs of the community. But, given the limited job opportunities that exist, these twin missions of formal education may be mutually antagonistic. The schools cannot resolve the broader problems of this society, but neither can they allow their primary purpose -- the education of the youth of this society -- to be corrupted by the failure of the job market.

What Can the Schools Do?

From 1945 to 1965, the demands of the American economy for educated workers grew at a rapid pace. Public schools responded with programs geared to forestall students from dropping out of high school and to prepare students for entry into colleges and universities. But by 1971 it was becoming clear that the number of educated workers was growing more rapidly than the number of jobs for them. Today, the Philadelphia School District, like public school systems across the nation, is confronted with a perverse dilemma. The public schools are succeeding in keeping youngsters in school longer and in increasing the number of students going on to college, while the growth in demand for educated workers slows down. As the data for Philadelphia confirm, an obvious disparity exists between the career plans of a considerable number of young people and society's requirements. It appears inevitable that this contradiction will be resolved, in the short-run at least, through the personal suffering of large numbers of young people who are unable to achieve their career objectives and are forced to abandon them.

Two views of this situation have emerged (cf., O'Toole, 1977: chapter 3). Some manpower economists have argued that the problem is that the schools

have been too successful, that Americans are overeducated. One prominent economist even went so far as to suggest that the problem could be solved by cutting HEW expenditures for education (O'Toole, 1977:57). Other economists, and we agree with them, have argued that the problem is one of underemployment. They have opposed cuts in expenditures for public education as a means of limiting the number of young people aspiring to college degrees and satisfying careers, contending instead that the long-run, global solution to the problem lies in a fundamental restructuring of the work-education relationship. While we agree with this view, it offers little insight into some difficult questions of immediate concern to public school administrators. Given the employment situation facing high school and college graduates over the next eight years, what is the responsibility of the public schools? What constitutes responsible behavior on the part of teachers, guidance counselors and administrators?

While we do not pretend to be able to address all the dimensions of this question, there are some things which, from our perspective as economists, seem clear.

* Students graduating from high school or college in 1985 will not retire until the 2030's. The government now estimates that a 20 year-old man will change jobs 6.6 times over his lifetime, and that at least one of these changes will require formal retraining (O'Toole, 1977: 39). While the employment outlook for college graduates between now and 1985 necessarily influences planning at the high school level, education must prepare students to take advantage of future opportunities that may open up. Education for informed and intelligent participation in society during the third millenium should not be sacrificed to the seemingly practical goal of preparing to meet current labor market conditions.

* Many entry level jobs do not require formal training. In more than 40 percent of the jobs in the Philadelphia area, the necessary skills can be learned on the job by a high school graduate. The skills many employers actually look for are the ability to read, to write, to do arithmetic, to learn new skills, and to interact cooperatively with coworkers and supervisors.

* Vocational education programs should teach not only vocational skills, but the theory behind vocational practice as well. Employers will then have a basis on which to build with further on-the-job training, workers skills will be more readily transferable from one kind of job to another, and skills will not become outdated as quickly. As with other high school programs, teaching students how to learn (including the necessary reading and study skills), so that they can take advantage of employer-sponsored retraining opportunities, should be a major priority.

Vocational programs must also be careful to acquaint students with jobs that exist, and to update courses so that students do not learn obsolete or unnecessary skills. The identification of emerging occupations elsewhere in this report addresses this issue directly.

* The schools should recognize that the positive employment experience currently associated with vocational or technical training results from the fact that the number of skilled blue collar workers (supply) closely approximates the employment opportunities for them (demand). Thus the U.S. Department of Labor (1974:111) estimates the national increase in employment of skilled blue collar workers between 1970 and 1980 at 16.5 million and the increase in the number of skilled blue collar workers at 15.1 million. In Philadelphia, the proportion of jobs requiring technical, vocational, business school or apprenticeship training which includes most skilled blue

collar jobs plus some personal services and secretarial jobs is 24.2 percent of the total (Table 5.1). The proportion of younger students surveyed who aspire to such jobs is 20.9 percent, but this figure rises to 27.1 percent for the older students (Tables 5.9 and 5.10). Increasing the total number of students who desire such jobs is unlikely to improve employment opportunities, since the supply of such workers nationally is already in line with employment opportunities, and locally the proportions appear about right. On the other hand, increasing the knowledge that students who aspire to jobs as skilled workers have regarding the educational requirements of the occupations they are considering may enable such students to better prepare for employment. The evidence from this study indicates that the knowledge of Philadelphia public school students regarding the requirements for entry into skilled blue collar and clerical trades improves dramatically as the students mature. Accurate information about growing and declining industries may also help vocationally-oriented students choose among skilled blue collar and service trades.

*Many jobs in the Philadelphia labor market that require a degree from a two or four year college are in occupations that fall within one of the fourteen vocational education clusters. In addition, many students who aspire to such occupations expect to get a college degree. Academic offerings at vocational-technical high schools should be upgraded, expanded and advertised, so that serious students can combine a first-rate college preparatory program with the acquisition of vocational skills. A similar approach has already proved successful at Saul (the agricultural high school) and the Franklin Learning Center (which houses several programs including one for the creative and performing arts).

* Several studies have shown that actual work experience between the ages of fifteen and seventeen permits young people to examine jobs and careers and appears to be effective in easing the transition from school to work. Cooperative education or work study programs give experience in responsible, interdependent activity, and are a major source of labor market information for the students involved.

Care must be taken, when expanding such programs, to guarantee that the students will not function as a source of cheap labor for employers, and that co-op jobs are not in declining industries. Co-op jobs should provide students with an opportunity to learn new skills or employ skills already learned in school. Otherwise, work will be unrewarding, and education will appear to be unnecessary. There is also some evidence that students benefit more from a series of short and varied experiences than from holding one job for an entire school year.

Our conclusion is that a narrow vocationalism, in which today's students are honed to meet the requirements of today's labor market, cannot be justified. Labor market conditions are likely to change over the working lives of those entering the labor force in the next few years. Employers require workers who can read, write, compute and have learned how to learn. These are also the prerequisites for personal development and for informed, responsible citizenship. In addition, actual work experience appears to be a major educational experience for teen-agers. Cooperative and work study programs should be expanded to encompass many more students.

Summary

Data obtained on the aspirations of Philadelphia students and on the employment opportunities in Philadelphia and surrounding communities confirm an alarming trend that is already discernible nationwide.

The supply of educated workers is outgrowing the demand for such workers. Students' occupational aspirations and educational expectations are high, while employment opportunities, as one ascends the occupational hierarchy, are not expanding at the same pace. Nationally, the U.S. Department of Labor (1974, p. 111) estimates that between 1970 and 1980 the number of workers qualified for professional and technical occupations will only be 39.0 million. The oversupply of qualified workers in this decade will amount to 6.3 million persons. Locally, the disjunction between occupational aspirations and employment possibilities is revealed in the fact that 44 percent of the job openings require only a high school diploma and skills that are easily obtained on the job while only 15 percent require 4 or more years of college. Among the students surveyed, however, 38 percent of both the younger and older groups of students aspire to jobs that require such a college degree while 54 percent expect to graduate from college. Only 24 percent of the younger students and 16 percent of the older students aspire to jobs for which a high school education is considered adequate preparation.

This disparity between occupational aspirations and employment opportunities makes it impossible for public school systems, including the Philadelphia School District, <u>both</u> to meet the educational needs of the students, including preparation for higher education and ultimately for a rewarding job, and to meet the manpower needs of the community. A wide gulf exists between the educational expectations of the students and the educational requirements of society, which the institution of public education is powerless to bridge.

CHAPTER TWO: The Determinants of Educational and Occupational Aspirations

In the abundant literature on occupational attainment economists and sociologists alike have argued the importance of family background as a determinant of preschool training, schooling, on the job training and, more generally, investments in human capital. In this way, family background is believed to exert a major indirect influence on earnings and occupation (Becker, 1964; Blau and Duncan, 1967; Hauser in Solomon and Taubman, 1973). More recently, investigators have successfully employed attitudinal variables in their models explaining occupational attainment (Duncan et al., 1972; Sewell and Hauser, 1975). Two researchers, Kuvlesky and Bealer (1967) suggest that aspiring to an occupation may not be a sufficient condition to ensure attainment but it may be a necessary one. Some occupations, they reason, require advance preparation and committment. Postponement or lack of a decision to enter such a field may dramatically reduce the probability of ever entering. Sewell and Shah (1968), somewhat analogously, find even after controlling for many background variables that the decision to enter college is perhaps the most critical factor in the process of obtaining higher education. Indeed college plans are very good predictors of attendance and of graduation. The correlation between positive college plans and actually graduating from college is .56 for males and .58 for females. If general educational attainment is compared to college plans, their data show a correlation of .69 for males and .76 for females. Gasson et al, (1972: table 2) report that educational aspiration was the most powerful predictor of status attainment, and Griffin and Alexander (1978) found that occupational aspiration is the most significant determinant of occupational achievement among those who entered the labor market after high school. Sewell and Hauser (1975) found that when social psychological variables were included in their equations they played a significant role in effecting worldly success.

Very little research, however, on the determinants of occupational and educational aspirations of young persons has been forthcoming. The studies that have been done tend to be descriptive, relying largely on bivariate analysis of aspirations and some indicator of socioeconomic status, of race or of sex. There has been comparatively little examination of the mix of factors that influence early choice of occupations or of the level of education which students wish to pursue (Duncan et al., 1972; Bachman, 1978; Gasson et al. 1972). This paper examines the determinants of occupational and educational aspirations of adolescents. We study this age cohort because it is in this period that students are seriously obliged to make choices among courses and curricula that affect their ultimate occupation. Multiple regression techniques are employed to examine the educational, socioeconomic, racial and attitudinal influences on the expected and desired occupational and educational goals of high school students. In addition, the influence of students' "knowledge of the world of work" on the same dependent variables is examined. Finally, the influence of factors such as race, sex, grade and parents' socioeconomic status on students' "knowledge of the world of work" is also considered.

The analysis is based on a survey of 1,070 eighth and ninth grade students in 1977 and 1,551 tenth and eleventh grade students in 1978 (total N=2621). The selection of the sample required a three stage process: (one) the city's public schools were stratified according to geographic location (i. e. district), grade levels, racial composition, curriculum, and social class composition; (two) nineteen schools were chosen to provide a representative sample of the system; (three) each chosen school was asked to provide either "average" classes or, when three or more classes were used in one school, to provide classes spanning the ability range of the school's enrollment. A questionnaire was utilized to obtain the relevant information.

In the questionnaire, a variety of question formats were employed to obtain the students perceptions, beliefs and orientations toward work.[1]

Methodology: Variables and Hypotheses

The principal method of analysis utilized is ordinary least squares. The functions are specified in two ways, linear and intrinsically linear. In the intrinsically linear case a semilog transformation is employed to account for the decreasing influence of the independent variables due to the increasing scarcity of occupational positions and the difficulty of entry as one moves toward the upper echelons of the occupational hierarchy.[2] Dummy variables are included as proxies for sex, grade and ethnicity, with other variables developed to reflect family background, knowledge of the world of work and the students' attitudes about work. The questionnaires administered during the two sampling periods were not entirely alike. Where possible, however, we have compared the results for the two cohorts.

Dependent Variables: The responses to the questions: "What would you like to be doing when you are about 35 years old?" and "Sometimes it is not possible to get the job that you would most like. Realistically what job do you think you will have when you are 35 years old?" were used to ascertain occupational aspirations and expectations of the respondents. The answers were then converted to the Duncan Socioeconomic Status index to provide a hierarchical measure of the respondents' career plans. The Duncan index is widely used in sociological models of status attainment (Blau and Duncan 1967, Duncan et al. 1972; Sewell and Hauser, 1975). It provides a score from 1 to 99

[1] A comparison of the sample's demographic characteristics with that of the school system indicates that the sampling design produced a remarkably representative sample, with the sample statistics within a percentage point of the population parameters.

[2] In our analysis both methods yielded similar results. Therefore we shall confine our discussion to the linear case, although the results of the semilog transformation are presented in the tables.

which reflects the social status of each job.

Educational aspirations and expectations were obtained from the questions: "If you had good enough grades and enough money to keep going to school, how far would you like to go in school?" and "How much education do you think you will get?"

These variables were measured on a six point scale: (1) will not finish high school; (2) will graduate from high school; (3) will go to business, technical or nursing school; (4) will go to college for awhile; (5) will graduate from college; (6) will go to graduate or professional school.

The students' knowledge of the world of work was ascertained from a series of question adapted from the "knowledge of the world of work" battery administered in the National Longitudinal Survey (see, Parnes and Kohen, 1975). These assess the respondents' familiarity with the tasks performed in various jobs and the usual education of job holders. The responses to these questions were combined into a fourteen point scale indicating the number of correct answers.

Independent Variables: Family social status was measured by the Duncan score of the parent with the higher status job, and by the educational attainment of the parent with the higher academic credentials. We include dummy variables for race (black = 1, white = 0), sex (men = 0, women = 1), and grade (lower grade = 0, higher grade = 1). The attitudinal variables reflect a variety of work-related values and nonpecuniary rewards. The students were asked to state the importance to him/her, on a four point scale, of a number of job characteristics. The responses were elicited from the following questions:

1. "How important is it to you that the occupation you choose is the kind of job where you can set your own hours?" (OWNHOURS)
2. "How important is it to you that the occupation you choose offers steady work, and you are less likely to be fired?" (STEADY)
3. "How important is it to you that the occupation you choose offers very interesting work?" (INTEREST)
4. "How important is it to you that the occupation you choose gives you a chance to be your own boss?" (OWNBOSS)
5. "How important is it to you that the occupation you choose pays well?" (PAYSWELL)
6. "How important is it to you that the occupation you choose gives you a lot of respect from others?" (RESPECT)
7. "How important is it to you that the occupation you choose may make you famous?" (FAMOUS)
8. "How important is it to you that you don't have to stay in school for a long time to prepare for the occupation you choose?" (LONGTIME)

The index of knowledge of the world of work, discussed previously, is used as a dependent variable in one set of regressions and is included as an explanatory variable in others. Similarly, occupational aspirations and occupational expectations are included as independent variables in the education functions, and educational expectations is an independent variable in some of the occupational aspiration and expectation functions.

Empirical Results

Table 1 indicates the determinants of occupational aspirations and expectations. Linear and semilog forms are presented, although we limit our discussion to the linear results. We find that parental occupational status significantly affects the expected occupation of the students and just fails to achieve significance in the aspiration regression. The coefficients,

Table 2.1

DETERMINANTS OF OCCUPATIONAL ASPIRATIONS AND EXPECTATIONS (LINEAR AND SEMILOG)
Knowledge of the World of Work included
10th and 11th grade only

Dependent Variables	Desired Occupation (Firdunc)		Expected Occupation (Expdunc)	
Linear form	Linear	Semilog	Linear	Semilog
Explanatory Variables				
Parents occupational status	.056	.075	.140	.162
	(1.49)	(2.02)	(3.18)	(3.72)
Grade*	-2.51	-2.46	-2.89	-2.95
	(-1.70)	(-1.65)	(-1.69)	(-1.70)
Sex*	3.95	4.10	4.37	4.56
	(2.68)	(2.79)	(2.55)	(2.63)
Ethnic*	.216	.130	.919	.837
	(.34)	(.20)	(1.35)	(1.22)
Parents education	3.19	7.15	1.98	4.034
	(3.60)	(3.55)	(1.95)	(1.73)
Knowledge of the World of Work	1.96	10.16	1.79	8.39
	(7.13)	(6.49)	(5.47)	(4.59)
Constant	34.29	30.38	30.75	28.44
	(11.59)	(8.78)	(9.09)	(7.16)
R^2	.116	.105	.118	.102
N	763	763	599	599
F	16.59	14.84	13.25	11.34

*Grade: 0 = lower grade; 1 = higher grade
Sex: 0 = men; 1 = women
Ethnic: 0 = white; 1 = black

Table 2.2

DETERMINANTS OF EDUCATIONAL ASPIRATIONS
EXPECTATIONS (LINEAR AND SEMILOG)
Knowledge of the World of Work included
10th and 11th grade only

Dependent Variables	Expected Education (Edget)		Desired Education (Howfar)	
Linear form	Linear	Semilog	Linear	Semilog
Explanatory Variables				
Parents occupational status	.005	.007	.003	.005
	(1.86)	(2.51)	(1.31)	(2.05)
Grade*	-.098	-.092	-.107	.099
	(-1.03)	(-.95)	(-1.14)	(-1.06)
Sex*	.050	.065	-.021	-.010
	(.52)	(.68)	(-.22)	(-.10)
Ethnic*	.066	.058	.076	.069
	(1.73)	(1.53)	(2.09)	(1.87)
Parents education	.457	1.03	.298	.631
	(7.92)	(7.89)	(5.34)	(4.94)
Knowledge of the World of Work	.141	.714	.155	.770
	(7.89)	(7.13)	(8.94)	(7.88)
Constant	1.58	1.45		
	(8.25)	(6.50)		
R^2	.188	.174	.156	.132
N	838	838	837	837
F	32.1	29.24	25.52	21.10

*Grade: 0 = lower grade; 1 = higher grade
Sex: 0 = men; 1 = women
Ethnic: 0 = white; 1 = black

however, do not indicate a powerful influence. Apparently most of the effect of family background operates through parental education, where each increase in parent's credential level is associated with a 3.19 increase in the Duncan score of the student's occupational aspirations and almost a 2 point increase in his or her occupational expectation.

Our findings with respect to the effects of grade on career plans are consistent with the previous literature, which found that occupational aspirations are scaled down as the students progress through school (see Jencks et al., 1972).

Ethnicity is insignificant in these regressions. This is due to several factors. (1) Many studies have shown that black youths' expectations and aspirations are equal to or higher than those of whites (see Gordon, 1977). (2) The Philadelphia public schools have a disproportionate number of black students compared to whites. White students from higher status families frequently attend private schools. Thus, our sample is truncated for whites on the higher end of the status hierarchy. (3) There is a corresponding reverse truncation for blacks on the lower end of the status continuum. That is, a disproportionate number of blacks from poorer backgrounds drop out of school around the tenth and eleventh grades. The resulting black school population represents a distribution somewhat skewed toward black students with higher aspirations.

The coefficients of sex are significant for both occupational aspirations and occupational expectations. They indicate that women have both aspirations and expectations that are approximately 4 points higher on the Duncan scale than those of men. Care must be taken in interpreting these results, however, because of the following two factors. First, it was necessary to reject from the regression those women who aspired to be housewives since the Duncan scale does not provide a score for this role. This may reduce

the number of women who would be at the lower end of the status hierarchy. Second, the Duncan scale is based on the proportions of men with a given level of education and earnings in an occupation. Hence, the Duncan scores for predominantly female occupations, particularly clerical and sales, may be higher than is warranted by the actual prestige status of those jobs.

One of the more interesting variables considered in this study is knowledge of the world of work. The students' knowledge of the world of work significantly affects both occupational aspirations and expectations. Indeed, for each 1 point increase in the knowledge of the world of work scale, there is approximately a 2 point increase in both student's occupational aspirations and expectations. This implies that students, even net of SES, who are more informed about the nature of the labor market aspire to higher status positions.

Previous studies by Roderick and Davis (1974) and Nelson (1963) have found that the socioeconomic status of the parental family is related to occupational knowledge, while those of Defleur and Menke (1975) and Krasnow (1968) found it to be unrelated. This is a question which we were able to address directly by treating knowledge of the world of work as a dependent variable and examining its determinants. Our findings are reported in Table 3, and support the hypothesis that socioeconomic status and occupational knowledge are related. We found that both parental occupational status and parental education significantly affect the knowledge of the world of work. However, it should be noted that the size of the coefficients are small.

With respect to the other determinants of knowledge of the world of work, we note in passing that our findings indicate that (1) blacks have a lower level of occupational knowledge relative to whites, which is consistant with previous studies, (see Roderick and Davis, 1974); (2) sex is

Table 2.3

DETERMINANTS OF KNOWLEDGE OF THE WORLD
OF WORK (LINEAR AND SEMILOG)
10th and 11th grade only

Dependent Variable Linear form	Linear	Semilog
Explanatory Variables		
Parents occupational status	.018 (4.04)	.019 (4.25)
Grade*	.476 (2.57)	.475 (2.56)
Sex*	.121 (.65)	.123 (.66)
Ethnic*	-.110 (-1.51)	-.109 (-1.51)
Parents education	.259 (2.33)	.543 (2.16)
Constant	5.41 (16.86)	5.57 (19.11)
R^2	.05	.05
N	842	842
F	9.02	8.86

*Grade: 0 = lower grade; 1 = higher grade
Sex: 0 = men; 1 = women
Ethnic: 0 = white; 1 = black

found to be insignificant, which implies that there is no general difference in the levels of occupational knowledge between men and women; and (3) grade is found to be a small but significant influence on the level of occupational knowledge, with students in the eleventh grade tending to score only one half point higher than those in the tenth grade.

Table 2 examines the determinants of educational aspirations and expectations for tenth and eleventh grade students. An important finding of this study is that parental occupational status significantly affects the level of education which the student expects to achieve, but is insignificant in explaining the level of education desired. The implications of this are explored below.

Parental education significantly influences both educational expectations and aspirations. The coefficient of parental education in the expected education function indicates that a one level increase in parental education results in approximately a one-half level increase in the students' educational expectations. Similarly, the coefficient in the desired education function indicates that a one level increase in parental education results in slightly less than one-third of a level increase in the students' educational aspirations.

The coefficients for grade indicates that the educational aspirations and expectations of eleventh grade students are not significantly different from those of tenth graders. Similarly, the educational aspirations and expectations of these young women are not significantly different from those of these young men.

Ethnicity influences both aspirations and expectations significantly. The coefficient implies that blacks have aspirations and expectations which are higher than those of whites. This finding is consistent with research reported in Gordon (1977).

Knowledge of the world of work has a meaningful impact on both

educational aspirations and educational expectations. Students who have greater occupational knowledge have both higher educational aspirations and expectations.

Table 4 presents the determinants of occupational aspirations and expectations for both samples. It includes both the full set of attitudinal variables and expected education as independent variables.*

The students' expected level of education was included to see whether or not students who expected greater educational achievement also expected or aspired to higher status positions. The data for both samples indicate that the students' educational expectations significantly affects both occupational aspirations and occupational expectations. In the eighth and ninth grade cohort, a one level increase in expected education is associated with approximately a six and a half point (Duncan score) increase in both desired occupation and expected occupation. For the older cohort, a one level increase in expected education is associated with a seven point (Duncan score) increase in desired occupation and a six point (Duncan score) increase in expected occupations.

When, as in Table 4, educational expectations are included among the determinants of occupational aspirations we find that parental education is no longer significant. It should be recalled, however, that parental education significantly affects educational expectations. Thus, it appears that parental education operates on occupational aspirations and expectations indirectly through its effect on educational expectations.

The attitudinal variables are not significant in either the expected occupation or desired occupation regressions for the eight and ninth grade

*Because the knowledge of the world of work battery was not administered to the eighth and ninth grade sample, we have eliminated the variable from both of these regressions to render the equations comparable.

Table 2.4

DETERMINANTS OF OCCUPATIONAL ASPIRATIONS AND EXPECTATIONS INCLUDING ATTITUDES AND EDUCATIONAL EXPECTATIONS FOR BOTH SAMPLES
Knowledge of the World of Work not included

	8th and 9th grade		10th and 11th grade	
Dependent Variables	Desired Occupation	Expected Occupation	Desired Occupation	Expected Occupation
Explanatory variables				
Parents occupational status	.115 (2.73)	.176 (3.52)	.035 (1.04)	.133 (3.23)
Grade*	-3.54 (-1.88)	-1.12 (-.53)	-1.23 (-.92)	-2.20 (-1.37)
Sex*	3.73 (2.17)	5.16 (2.53)	3.66 (2.69)	3.56 (2.18)
Ethnic*	4.92 (2.74)	2.01 (.92)	-.578 (-.98)	.484 (.759)
Parents education	.654 (.68)	-.141 (-.12)	.474 (.57)	-.339 (-.343)
Expected Education	6.20 (9.79)	6.77 (9.02)	7.07 (14.59)	5.91 (10.27)
Ownhours	-.172 (-.20)	-.740 (-.76)	-.061 (-.08)	.791 (.894)
Steady	.934 (.59)	1.78 (.93)	.753 (.67)	-.309 (-.225)
Respect	-1.17 (-1.17)	-.966 (-.76)	-.295 (-.34)	.532 (.513)
Payswell	.746 (.53)	.533 (.32)	.034 (.03)	-.837 (-.633)

Table 2.4 (con)

Dependent Variables	8th and 9th grade Desired Occupation	8th and 9th grade Expected Occupation	10th and 11th grade Desired Occupation	10th and 11th grade Expected Occupation
Interest	.521	-.003	-.642	-.229
	(.33)	(-.001)	(-.52)	(-.161)
Longtime	-1.15	.746	-.99	-1.56
	(-1.46)	(.79)	(-1.53)	(-1.98)
Ownboss	1.29	1.15	.162	-5.46
	(1.38)	(1.02)	(.21)	(-.565)
Famous	-1.15	-1.18	.993	.493
	(-1.48)	(-1.30)	(1.38)	(.573)
Constant	21.47	11.38	27.66	31.3
	(2.32)	(.94)	(4.13)	(4.27)
R^2	.29	.25	.29	.25
N	584	486	763	599
F	16.80	11.5	21.9	13.67

*Grade: 0 = lower grade; 1 = higher grade
Sex: 0 = men; 1 = women
Ethnic 0 = white; 1 = black

students. "Longtime," the attitudinal variable which represents the degree of importance of minimizing the level of education required (i.e., ending school quickly) is significant in the expected occupation regression for the tenth and eleventh grade sample. It indicates that a one level increase on this scale of importance is associated with approximately a one and a half point (Duncan score) decrease in expectations. There is, thus, evidence of a tradeoff between willingness to stay in school and the expected status of the job.

For the eighth and ninth grade students, parental occupational status is significant in both measures of occupational plans. Parental occupational status, however, is significant in only the expected occupation regression and fails to achieve significance in the desired occupation regression for the older students. This latter cohort again manifests the differential effect of parental social status on students' occupational expectations versus students' occupational aspirations. The effects of sex, grade and race are similar to those found in Table 1.

Table 5 presents the determinants of educational aspirations and educational expectations. The equations for educational aspirations include "attitudes" and occupational aspirations as explanatory variables. The equations for educational expectations include attitudes and occupational expectations as explanatory variables. This table, to provide comparability, excludes the knowledge of the world of work scale.

The desire to end school (LONGTIME) and the importance of pay (PAYSWELL) are both significant negative influences on aspirations and expectations. Intrinsic interest in the work (INTEREST) exerts a significant positive influence for the tenth and eleventh grade cohort. Importance of steady work (STEADY), the desire to end schooling (LONGTIME), the importance

Table 2.5

DETERMINANTS OF EDUCATIONAL ASPIRATIONS AND EXPECTATIONS, INCLUDING ATTITUDES AND OCCUPATIONAL ASPIRATIONS OR OCCUPATIONAL EXPECTATIONS FOR BOTH SAMPLES

	8th and 9th grade		10th and 11th grade	
Dependent Variables	Desired Education	Expected Education	Desired Education	Expected Education
Explanatory variables				
Parents occupational status	.010 (3.94)	.010 (3.68)	.005 (2.16)	.005 (2.19)
Grade*	-.393 (-3.78)	-.481 (-4.36)	-.012 (-.13)	-.021 (-.22)
Sex*	.119 (1.17)	.020 (.18)	.007 (.08)	.088 (.92)
Ethnic*	.313 (3.00)	.419 (3.71)	.097 (2.75)	.062 (1.69)
Parents education	.136 (2.44)	.263 (4.39)	.249 (4.56)	.420 (7.40)
Expected occupation		.004 (4.67)		.004 (6.56)
Desired occupation	.007 (6.51)		.009 (9.59)	
Ownhours	.041 (.75)	.032 (.54)	.045 (.87)	.089 (1.65)
Steady	-.076 (-.85)	-.184 (-1.93)	.040 (.53)	-.120 (-1.56)
Respect	.028 (.48)	.115 (1.85)	.070 (1.22)	.101 (1.70)
Payswell	-.151 (-1.87)	-.184 (-2.14)	-1.96 (-2.70)	-.177 (-2.34)

Table 2.5 (con)

Dependent Variables	8th and 9th grade Desired Education	8th and 9th grade Expected Education	10th and 11th grade Desired Education	10th and 11th grade Expected Education
Interest	.072	.151	.201	.271
	(.793)	(1.56)	(2.47)	(3.22)
Longtime	-.253	-.321	-.259	-.284
	(-5.56)	(-6.68)	(-6.08)	(-6.39)
Ownboss	.042	.032	.045	.089
	(.75)	(.54)	(.87)	(1.65)
Famous	-.039	-.058	.058	.085
	(-.85)	(-1.19)	(1.21)	(1.71)
Constant	4.47	4.09	2.91	2.33
	(8.52)	(7.34)	(6.81)	(5.25)
R^2	.28	.30	22.6	.24
N	627	628	837	838
F	16.83	18.76	17.19	19.04

*Grade: 0 = lower grade; 1 = higher grade

Sex: 0 = men; 1 = women

Ethnic: 0 = white; 1 = black

of respect derived from the occupation (RESPECT), and intrinsic interest in the work (INTEREST) occasionally achieve significance. The importance of being one's own boss (OWNBOSS), the importance of establishing one's own working hours (OWN HOURS), and the importance of fame derived from the occupation (FAMOUS) have a significant positive influence on educational expectations among the older cohort. The coefficients of the attitudinal variables in the equations for educational aspirations and educational expectations indicate that there is a tradeoff between the nonpecuniary rewards which one desires from an occupation and the level of scholastic achievement.

Parental occupational and educational status are significant for both cohorts in determining both desired education and expected education. Students with a higher status background expect and aspire to higher levels of educational achievement.

For both cohorts, expected occupation is significant in influencing the expected education levels and desired occupation is a significant influence on desired education. Thus, students with higher occupational aspirations and expectations have higher educational expectations and aspirations.

We recognize, of course, the reciprocal effects of educational and occupational plans. The reality of career planning decisions is that neither variable is causally prior. Students who know their occupational goals will orient their educational plans accordingly. Alternatively, students are aware that superior credentials can be used for higher occupational attainment. Thus, we have included educational plans in the occupational equations and occupational plans in the education equations, and have found that these variables are significantly related.

The effects of grade, sex and ethnicity in Table 5 are similar to those discussed in Table 2.

The regressions reported in Tables 6 and 7 are very similar to those

Table 2.6

DETERMINANTS OF OCCUPATIONAL ASPIRATIONS AND EXPECTATIONS, INCLUDING ATTITUDES AND EDUCATIONAL EXPECTATIONS
10th and 11th grade only

Dependent Variables	Desired Occupation	Expected Occupation
Explanatory Variables		
Parents occupational status	.018 (.55)	.113 (2.76)
Grade*	-1.73 (-1.31)	-2.48 (-1.56)
Sex*	3.42 (2.55)	3.26 (2.02)
Ethnic*	-.455 (-.77)	.621 (.98)
Parents Education	.422 (.51)	-.514 (-.52)
Knowledge of the World of Work	1.18 (4.53)	1.13 (3.52)
Expected Education	6.59 (13.44)	5.52 (9.51)
Ownhours	.245 (.33)	1.07 (1.21)
Steady	.502 (.45)	-.685 (-.50)
Respect	-.065 (-.08)	.607 (.59)
Payswell	-.016 (-.02)	-.846 (-.65)
Interest	-1.21 (-.98)	-.743 (-.52)
Longtime	-.637 (-.99)	-1.11 (-1.4)

Table 2.6 (con)

Dependent Variables	Desired Occupation	Expected Occupation
Ownboss	.124 (.16)	-.589 (-.62)
Famous	1.29 (1.82)	.841 (.981)
Constant	22.49 (3.35)	26.81 (3.64)
R^2	.31	.262
N	763	599
F	22.38	13.84

*Grade: 0 = lower grade; 1 = higher grade
Sex: 0 = men; 1 = women
Ethnic: 0 = white; 1 = black

Table 2.7

DETERMINANTS OF EDUCATIONAL ASPIRATIONS AND EXPECTATIONS, INCLUDING ATTITUDES AND OCCUPATIONAL ASPIRATIONS OR OCCUPATIONAL EXPECTATIONS FOR BOTH SAMPLES
10th and 11th grade only

Dependent Variables	Expected Education	Desired Education
Explanatory Variables		
Parents occupational status	.003 (1.46)	.003 (1.36)
Grade*	-.073 (-.81)	-.067 (-.77)
Sex*	.063 (.68)	-.013 (-.15)
Ethnic*	.07 (1.98)	.103 (2.99)
Parents Education	.395 (7.13)	.228 (4.29)
Knowledge of the World of Work	.118 (6.7)	.116 (6.83)
Expected Occupation	.085 (1.72)	
Desired Occupation		.067 (1.40)
Ownhours	-.141 (-1.87)	.176 (.24)
Steady	.122 (2.09)	.085 (1.52)
Respect	-.172 (-2.34)	-.199 (-2.66)
Payswell	.200 (2.43)	.133 (1.67)

Table 2.7 (con)

Dependent Variables	Expected Education	Desired Education
Interest	-.238 (-5.44)	-.215 (-5.13)
Longtime	.084 (1.59)	.04 (.78)
Ownboss	.111 (2.27)	.084 (1.75)
Famous	1.70 (3.84)	2.33 (5.49)
Constant	.004 (6.06)	
R^2	.28	.27
N	838	837
F	21.7	20.05

*Grade: 0 = lower grade; 1 = higher grade
Sex: 0 = men; 1 = women
Ethnic: 0 = white; 1 = black

in Tables 4 and 5. They differ only in that they are restricted to the subsample of older students and thus can include knowledge of the world of work as an independent variable. Thus, Table 6 presents the determinants of occupational aspirations and expectations for the tenth and eleventh grade sample including attitudes, expected education and knowledge of the world of work. Inclusion of knowledge of the world of work reduces the influence of LONGTIME (ending schooling as soon as possible) in the expected occupation regression to insignificance. Thus, it appears that the influence of LONGTIME operates indirectly through knowledge of the world of work. Knowledge of the world of work, however, is significant, and for each one point increase in the occupational knowledge scale there is approximately a one point increase in both occupational aspirations and expectations.

In Table 7 the determinants of educational aspirations and expectations for the tenth and eleventh grade cohort, including attitudes, occupational expectations or aspirations and knowledge of the world of work, are examined. Again, the results are similar to those presented in Table 5. However, the inclusion of knowledge of the world of work into the model has rendered the influence of parental occupational status insignificant in determining expected education. This suggests that parental social status and the students' knowledge of the world of work are highly correlated.

While knowledge of the world of work has a significant influence on both expected education and desired education, we note that the coefficients are relatively small.

Academic achievement and the aspirations of high school students

One remaining issue we would like to address in our analysis of the determinants of the aspirations and expectations of students in grades eight through eleven is the role of academic achievement.

TABLE 2.8

DETERMINANTS OF EDUCATIONAL ASPIRATIONS AND EXPECTATIONS, INCLUDING ACHIEVEMENT TEST SCORES, FOR BOTH SAMPLES

Dependent Variables	8th & 9th grade Desired Education	8th & 9th grade Expected Education	10th & 11th grade Desired Education	10th & 11th grade Expected Education
Explanatory variables				
Reading achievement	.0008	.0006	.0037	.0048
	(14.93)	(6.44)	(36.41)	(59.44)
Parent's occupational status	.011	.010	.000	.003
	(19.98)	(14.07)	(0.01)	(1.54)
Parent's education	.171	.320	.290	.367
	(8.45)	(25.73)	(22.04)	(34.69)
Grade*	-.477	-.516	-.089	-.121
	(18.63)	(18.97)	(0.76)	(1.38)
Sex*	.090	.055	.015	.068
	(0.74)	(0.24)	(0.02)	(0.43)
Ethnic*	.320	.436	.108	.196
	(8.51)	(13.76)	(5.30)	(17.10)
Knowledge of the World of Work	----	----	.102	.057
			(22.67)	(6.98)
R^2	.18	.20	.22	.27
N	628	627	666	668
F	22.40	25.18	27.04	34.61

*Grade: 0 = lower grade; 1 = higher grade

Sex: 0 = men; 1 = women

Ethnic: 0 = white; 1 = black

TABLE 2.9

DETERMINANTS OF OCCUPATIONAL ASPIRATIONS AND EXPECTATIONS, INCLUDING ACHIEVEMENT TEST SCORES, FOR BOTH SAMPLES

Dependent Variables	8th & 9th grade Desired Occupation	8th & 9th grade Expected Occupation	10th & 11th grade Desired Occupation	10th & 11th grade Expected Occupation
Explanatory variables				
Reading achievement	.0134 (12.06)	.0111 (6.07)	.0529 (30.15)	.0559 (22.47)
Parent's occupational status	.165 (13.43)	.225 (17.72)	.006 (0.02)	.101 (4.04)
Parent's education	2.49 (5.85)	1.54 (1.56)	2.56 (6.81)	1.28 (1.22)
Grade*	-5.96 (9.55)	-3.81 (2.84)	-1.19 (0.54)	-2.21 (1.35)
Sex*	3.56 (3.85)	4.77 (4.99)	4.77 (8.76)	5.42 (8.06)
Ethnic*	7.87 (17.07)	6.17 (7.54)	1.38 (3.02)	2.05 (5.70)
Knowledge of the World of Work	----	----	.902 (7.00)	.664 (2.64)
R^2	.15	.12	.15	.16
N	585	487	616	477
F	17.58	11.23	15.33	12.64

*Grade: 0 = lower grade; 1 = higher grade

Sex: 0 = male; 1 = female

Ethnic: 0 = white; 1 = black

We think it important to determine if there is an association between the level of academic achievement and the level of educational or occupational aspirations for these students. To the extent that academic achievement facilitates the realization of goals, we are testing the realism of these students' plans. Academic achievement is measured by reading scores on the California Achievement Test. Latest available scores were used. Possible scores for students in grades eight to ten range from 176 to 826; for students in eleventh grade the range is from 222 to 987.

Results are reported in Tables 2.8 and 2.9. The reading achievement score exerts a highly significant influence on all forms of aspiration and expectation even when controlling for parental occupational status, parental education, grade, sex, ethnicity and, when available, knowledge of the world of work. The implication of these findings is that students with higher demonstrated academic achievement are the most likely to aspire to and expect to attain more years of schooling and more prestigious jobs. This is reassuring because it indicates that the stated aspirations and expectations of these students are based on a realistic perception of their own abilities and of the requirements of further schooling and occupational success. Coefficients of the other variables in these equations are consistent with those reported in the previous tables and need no further elaboration here.

Conclusion

We have attempted to determine the influence of several factors on the development of occupational and educational aspirations and expectations. The research literature shows that the desires and plans of younger students have a meaningful influence on their success even after controlling for

a variety of social background and educational factors. Thus, to the extent that we can understand the determinants of those plans and desires we can better understand the attainment process. We have found that it is possible to identify patterns of variables which systematically affect these students' expectations and aspirations. Three findings seem particularly relevant:

(1) Parental occupational status influences both occupational and educational expectations but fails to affect aspirations for either variable. The implications of this differential has great importance. These young students have internalized the dichotomy between an open meritocracy and the realities grounded in their social background. Considering the youth of the sample, they have learned a poignant lesson.

(2) Neoclassical economic theory suggests that the ability to translate skills and credential into rewards is in part dependent upon knowledge of the requirements and tasks of positions within the labor market. To that end several studies have attempted to ascertain the role of knowledge of the world of work in early labor market success. We have asked two questions about phenomena occurring earlier in the causal process: (1) What are the socioeconomic determinants of knowledge of the world of work? and (2) How does knowledge of the world of work affect aspirations and expectations when controlling for attitudes and background? The answers to the first questions were predictable; knowledge of the world of work varies positively with family social background and with grade in school. The answers to the second question were somewhat surprising; even controlling for social background, it significantly affects all four dependent variables.

(3) Our data provided an opportunity to examine the effects of several work-related values and attitudes in addition to measures of social background and personal characteristics. In general, students educational plans are more influenced by their attitudes and values then are their occupational plans. This is reasonable given the

more immediate temporal relation. The one exception, LONGTIME, indicates that some students are willing to make a tradeoff between educational perseverance and the expected return to credentials.

APPENDIX TO CHAPTER TWO: A Comparison of our sample with Data from a National Survey

Our survey was conducted within the Philadelphia school system. Several questions of the sort that we asked, however, have been administered to national samples of United States youth. In this appendix we compare our findings with those of one such national sample; the National Longitudinal Survey's study of young men's labor market experience (called, hereafter, the N.L.S. data). We were obliged to restrict the subsample to tenth and eleventh grade students to insure that the comparison is of relevant groups. Unfortunately, this necessitated using the earliest (i.e., 1966) N.L.S. data because only in 1966 were there respondents in the 10th and 11th grades. Further, as is obvious from the cohort's name, the N.L.S. sample used here is only of males. Nevertheless, a comparison of the data suggests that the Philadelphia sample's responses are very close to the responses of the National Sample.

Table 2A.1 displays the means of several critical variables used in the regression equations of Chapter II. The table also includes the means of similar variables from the N.L.S. study. A figure-by-figure comparison is appropriate.

The knowledge of the world of work scores indicate that the Philadelphia sample was somewhat less familiar with work tasks and with job requirements than the national sample of young men. It will be recalled, however, that black students performed less well on

TABLE 2A.1

MEANS OF SELECTED REGRESSION EQUATION VARIABLES AND COMPARISON DATA FROM NATIONAL LONGITUDINAL SURVEY'S STUDY OF THE YOUNG MEN'S COHORT

Philadelphia School System 10th & 11th grade students		N.L.S. subsample of 10th & 11th grade students	
World of work score 7.1 out of 14 (equals approx. 50% right)		World of work score 31.5 out of 56 (equals approx. 56% right)	
Parent's education (equals approx. 13 years)	2.39	Father's education	11
Parent's occupation	44	Father's occupation	40
Occupational aspiration	60	Occupational aspiration	58
Educational aspiration (equals approx. 15.5 years)	4.38		
Educational expectation (equal approx. 14 years)	3.90		
		Educational Goal	15

the battery than did whites and that the Philadelphia sample reflects the very high proporiton of black students in the school system. Thus, the two figures (of 50% correct answers for the Philadelphia groups and 56% correct answers for the National Sample) appear quite reasonable.

Parents' education is an average of two years higher in the Philadelphia sample. There are two explanations for this difference: one, our figure is based on the higher educational achievement of either parent. The N.L.S. figure is based only on the father's educational achievement. Thus, in those cases where the mother had a higher educational level than the father, our data would indicate a greater number of years of education than would the N.L.S. data. Second, the N.L.S. data are 12 years older than ours. The average educational achievement of the United States and Philadelphia populations has risen in that period. It is probable that if a sample similar to the N.L.S. one were questioned today, the average educational level, ceteris paribus, would be higher than in 1966.

Parental occupational status is 40 Duncan points on average in the national sample and an average of 44 Duncan points in our sample. Considering the variabliity of children's perceptions of their parents' work, this similarity is surprising. We note, also, that our data reflect the higher occupational status of the two parents whereas the N.L.S. procedure used only the father's occupational status. As in the previous comparison, then, the slight difference in procedure might account for the means differential.

Occupational aspirations (coded in Duncan points) is remarkably similar in both samples; 60 points in the Philadelphia sample, 58 points in the N.L.S. sample.

Lastly, we compare responses to the educational plans questions. One pertained to educational aspirations if the student had good grades and enough money. The other asked only what level of schooling the students expected to attain. The N.L.S. question falls somewhere in between, requesting educational "goals." The N.L.S. question response mean is in between the "real" and "ideal" mean years of education we derived. That is our mean response on ideal education is about 15.5 years; our mean response on expected education is about 14 years. The N.L.S. data show the mean educational goal to be 15 years.

Overall, the similarity of responses is remarkable. To the extent that it increases our confidence in the validity of our data, it is also comforting. Further, those differences that do appear are small and immediately understandable.

CHAPTER THREE: A Comparison of Students in Vocational Technical Programs With Students in Other Programs

This chapter explores the similarities and differences between (1) students enrolled in vocational technical schools or pursuing programs at the Swenson or Randolph Skill Centers and (2) students enrolled in all the other programs available in the Philadelphia School System. To perform these evaluations we constructed a series of tables combining the students from the Bok, Mastbaum, and Dobbins schools with students participating in programs at the Randolph and Swenson Skill Centers, and compare their characteristics with the characteristics of students enrolled in the remaining programs. The Saul Vocational-Technical School was excluded from the sample because it was felt that the atypical nature of students in this program would distort the sample and give an unrepresentative picture of vocational-technical students versus the remaining population. The resulting sample of 1,292 students includes 226 (17.5%) who are enrolled in vocational-technical programs of one sort or another, and 1,066 (82.5%) students enrolled in conventional programs.

A slight confusion in the comparison is created by the fact that some students in conventional high schools are enrolled in commercial programs. The proportion and actual number of such students in our sample, however, is very small and the tables may be read with reasonable assurance as to the categories specified.

We have three reasons for concerning ourselves with a comparison of students in vocational-technical programs versus those in other programs: First, it is important that we understand the demographic and social differences of students participating in the two types of curricula. The history of vocational education is entangled in the debate over tracking. In 1945 the "life adjustment education" movement's Charles A. Prosser proposed that "the vocational school of a community will be able better to prepare 20 percent of the youth of secondary school age for entrance upon desirable skilled occupations; and that the high school will continue to prepare another 20 percent for entrance to college" (in Spring, 1976). Prosser was attempting to delineate a share of the student population who were unambiguously appropriate for vocational education. The backgrounds of those students were investigated by Hollingshead (1949) who found that the majority of youth in the vocational track were from the lower classes. Thus, comparison of students' characteristics provides some insight into the persistence of tracking or at least the criteria upon which systematic differential program selection may occur. Second, students in different types of programs require and will accept career guidance from widely differing sources. The most reliably perceived sources of information may not be the same for those in academic and those in vocational-technical programs. Further, the types of information that are both useful and perceived as useful is an empirical question; a priori

guesses as to what and who students will believe are unnecessary. These data, for instance, suggest that teachers and career guidance personnel serve very different roles for the students in conventional programs versus the students in vocational-technical programs. Third, and related to the issue above, Griffin and Alexander (1978) note that counselors and teachers, in addition to imparting career information, may also act to perpetuate the inheritance of social position. Griffin and Alexander are suggesting that counselors and teachers may orient their advice on the bases of students' race, sex or social class, rather than on students' interests or abilities (see also Bowles and Gintis, 1976).

Table 3.1 indicates the relationship between ethnicity and enrollment in vocational-technical programs. As can be seen, there is very little difference in the enrollment patterns in relation to ethnicity. Blacks and other nonwhites are proportionately represented in vocational-technical programs. Table 3.2 presents the relationship between sex and enrollment in vocational-technical programs. It indicates, not surprisingly, that a higher proportion of males than females are enrolled in vocational-technical programs. On the other hand, because of the higher numbers of poor males who withdraw from the school system and the corresponding smaller proportion of males than females in high school, the actual numbers of males and females enrolled in vocational-technical programs in our sample are almost equal.

Table 3.1

RELATION BETWEEN ETHNICITY AND ENROLLMENT
IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Ethnicity		
	White	Black	Other
Non-vocational technical	34.1%	61.9%	4.0%
Vocational-technical	30.0%	64.5%	5.5%
	420	784	54

Table 3.2

RELATION BETWEEN SEX AND ENROLLMENT
IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Sex	
	Male	Female
Non-vocational technical	42.0%	58.0%
Vocational-technical	48.7%	51.3%
	558	734

Table 3.3

RELATION BETWEEN GRADE AND ENROLLMENT
IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Grade	
	Tenth	Eleventh
Non-vocational-technical	47.9%	52.1%
Vocational-technical	48.7%	51.3%
	621	671

Because the decision to enter vocational-technical programs is made by the tenth grade, no relationship between grade and enrollment pattern was expected. This is confirmed in Table 3.3 (the relationship between grade and vocational-technical enrollment).

Table 3.4 indicates the relationship between father's occupational status and respondent's enrollment in vocational-technical programs. Table 3.4 shows that the relationship between father's occupational status and vocational-technical enrollment is very powerful. Less than one-half of those enrolled in non-vocational-technical programs come from families where the father has a low status job, whereas the comparable proportion of those enrolled in vocational-technical programs is almost two-thirds; i.e., 66% of those enrolled in vocational-technical programs come from families where the father has a low status job. On the other end of the status continuum, the data are even more skewed. Fifteen percent of those enrolled in non-vocational-technical programs are from families where the father has a high status job, whereas only 8% are enrolled in vocational-technical programs (and come from families where the father has a high status job). Thus, there exists a strong negative relationship between father's occupational status and enrollment in vocational-technical programs.

Another way of investigating the relation between father's status and respondent's curriculum is to compute the percentages in the opposite direction from the way they are provided in Table 3.4.

Table 3.4

RELATIONSHIP BETWEEN FATHER'S OCCUPATIONAL STATUS (DUNCAN SCORE) AND RESPONDENTS' ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Father's Occupational Status		
	Low	Medium	High
Non-vocational-technical	47%	39%	15%
Vocational-technical	66%	27%	8%
	385	283	105

Table 3.4A

RELATIONSHIP BETWEEN FATHER'S OCCUPATIONAL STATUS (DUNCAN SCORE) AND RESPONDENTS' ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS; PERCENTAGES OPPOSITE DIRECTION FROM TABLE 3.4

Program	Father's Occupational Status		
	Low	Medium	High
Non-vocational-technical	78.2%	88.0%	90.5%
Vocational-technical	21.8%	12.0%	9.5%
	385	283	105

That is, instead of noting the percent of students in a particular program with high or low status, we can observe the proportions from each status group enrolled in the two programs. Table 3.4A presents the percentages in this fashion. The results are striking. There is a clear monotonic progression, with those in the higher status group contributing fewer students to the vocational-technical programs. The results, of course, are consistent with Table 3.4 and the interpretation is the same.

One obvious advantage of vocational-technical programs is the ability to advise students on the career possibilities within the field for which they are preparing. One possible disadvantage, however, of such programs is that they might severely limit the students' familiarity with more than one career path. For this reason the data in Table 3.5 (the relation between knowledge of the world of work and vocational-technical enrollment) is encouraging. Table 3.5 clearly shows that students from vocational-technical programs are as knowledgeable about the world of work as students from non-vocational-technical programs. Thus, while both groups of students might benefit from a greater knowledge of the tasks performed in preparation for various jobs, there appear to be no systematic differences in the students' knowledge of the world of work. Further, the implications of Table 3.5 should be encouraging to those advising students in vocational-technical programs; it

Table 3.5

RELATION BETWEEN KNOWLEDGE OF THE WORLD OF WORK AND ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Knowledge of the World of Work Score	
	Less than or Equal to 7	More than 7
Non-vocational technical	63%	37%
Vocational-technical	62%	38%
	811	481

is clear that these students did not enter vocational-technical curricula as a default or from greater ignorance about the labor market than other students.

The next group of variables we examine pertain to the students' perception of the role of guidance counselors and other influences on the students' selection of vocational-technical versus other programs. Table 3.6 indicates the various means by which students became aware of the occupation they wish to pursue. Several significant differences in the proportions citing different sources of occupational information are obvious. Students in vocational-technical programs, for instance, were far more likely to be influenced by their teachers than students in non-vocational-technical programs. 8.4% of those students in vocational-technical programs claim that their teachers were the most important factor in their selection of a career, whereas only 4.7% of those in non-vocational-technical programs attributed this role to their teachers. In contrast, more than twice as many students in non-vocational-technical programs as compared to vocational-technical programs claimed that they found the job they wish to pursue by watching someone act the role on TV. That is, 6.8% of those in non-vocational-technical programs claimed they were influenced by television whereas only 3.3% of those in vocational-technical programs claimed to be influenced by TV. Interestingly, there appears

Table 3.6

RELATION OF METHOD OF CAREER SELECTION AND ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Know Someone	Friends	Parents	School Program	School Counselor	Teacher	Someone on TV	Read About it	Saw Someone	Summer Job	
Non-vocational-technical	26.2%	3.3%	7.8%	11.9%	5.2%	4.7%	6.8%	10.3%	12.7%	11.0%	1,015
Vocational-technical	29.3%	1.4%	6.5%	14.0%	4.7%	8.4%	3.3%	7.4%	14.4%	10.7%	215
	329	36	93	151	63	66	76	121	160	135	1,230

to be little significant difference in the students' perception of the role of a school career guidance program or the school guidance counselor in this aspect of career selection. Lastly, we note that a somewhat higher proportion of students in non-vocational-technical programs claimed to have found out about the job they want by reading about it than those in vocational-technical programs.

Table 3.7 presents a somewhat different picture than that observed in Table 3.6. Table 3.7 (the relation of students' perception of possible career help from guidance counselor to vocational-technical enrollment) displays a decidedly more positive perception of guidance counselors or career counselors by students in vocational-technical programs compared to students in non-vocational-technical programs. Almost four-fifths of students in vocational-technical programs responded that they felt the guidance counselor or career counselor would be of help in the selection of a job; while such positive perceptions of career guidance personnel by non-vocational-technical students is about 9% less. Ironically, as can be seen in Table 3.8 (proportion who had personal meeting with school guidance or career counselor by vocational-technical enrollment), there is no difference in the proportions who claimed to have had personal encounters with the guidance counselor.

It is possible to look at the role of the guidance counselor as it affects the more temporally immediate task of school selection

Table 3.7

RELATION OF STUDENTS' PERCEPTIONS OF CAREER HELP FROM GUIDANCE COUNSELOR TO ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Perceived Helpfulness	
	Helpful	Not Helpful
Non-vocational technical	70.5%	29.5%
Vocational-technical	79.2%	20.8%
	912	355

Table 3.8

PROPORTION WHO HAD PERSONAL MEETING WITH SCHOOL GUIDANCE OR CAREER COUNSELOR BY ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Personal Meeting	
	Had Personal Meeting	Did not Have Personal Meeting
Non-vocational-technical	46.5%	53.5%
Vocational-technical	46.0%	54.0%
	594	685

(compared to career selection). Here, see Table 3.9, we find twice as many students in vocational-technical programs claiming to have been influenced by their guidance counselors as those in non-vocational-technical programs. Almost a third of those in vocational-technical programs claim that the school guidance counselor was instrumental in the selection of the school, whereas only 15.4% of those in non-vocational-technical programs attribute school selection to their guidance counselors.

We continue our analysis of the influences on the students' selection of high schools. Table 3.10 displays the students' responses to the question on "the most important influence" in their choosing a particular school. We present, of course, the figures for both those in vocational-technical programs and those in other programs. There are dramatic and significant differences in the proportions citing the various factors. The influences on students selecting vocational-technical programs are far more directed, and the decision to enter a vocational-technical program far more intentional than the decision to pursue any other curriculum. Almost a third of the students in non-vocational-technical programs claimed they were "assigned" to their current high school. In contrast, only 7.1% of those in vocational-technical programs claimed they were "assigned" to their schools. The comparison between those who selected their school because they "wanted" it is even more powerful. Only 19.2% of those in non-vocational-technical programs reported that they chose their school because they "wanted"

Table 3.9

ROLE OF GUIDANCE OR CAREER COUNSELOR IN SELECTION OF SCHOOL BY VOCATIONAL-TECHNICAL ENROLLMENT

Program	Significant Role of Guidance Counselor	
	Yes	No
Non-vocational-technical	15.4%	84.6%
Vocational-technical	30.5%	69.5%
	232	1,052

Table 3.10

RELATION OF DETERMINANTS OF SCHOOL SELECTION TO ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Influence of School Selection					
	Assigned	Wanted Program	Friends	Near Home	Parents	Reputation
Non-vocational-technical	32.3	19.2	4.8	20.2	8.8	14.5
Vocational-technical	7.1	64.3	2.7	5.4	3.1	17.4
	356	346	57	225	100	192

it. In contrast, almost two thirds (64.3%) of those in vocational-technical programs claimed they "wanted" the schools they were in.

On the other side of the coin, non-vocational-technical students appear more likely to have just "drifted" into their high schools. About a fifth of the non-vocational-technical students, for instance, selected their high school because it's near their home. (The comparable figure for those in vocational-technical programs is 5.4%.) Similarly, non-vocational-technical students were more likely than vocational-technical students to select a high school because it was attended by friends or recommended by their parents.

The one counter example to this pattern is found in the proportions relying on reputation. Here, non-vocational-technical students were slightly more likely to cite "reputation" as a reason for school selection than students in vocational-technical programs. The differences, however, are quite small.

We examine next the relation of occupational aspirations to enrollment in vocational-technical programs (see Table 3.11). In this comparison, vocational aspirations have been coded in Duncan socioeconomic status points. The findings are straightforward, and, being based on students' aspirations, are remarkably sensible. Table 3.11 indicates that most students in vocational-technical programs understand that most jobs available to them are not of

Table 3.11

RELATION OF OCCUPATIONAL ASPIRATIONS TO
ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Occupational Aspirations (Duncan Score)		
	Low	Medium	High
Non-vocational-technical	13%	54%	33%
Vocational-technical	26%	57%	17%
	174	641	352

the highest strata. In fact, 26% of the students report that they hope to get jobs for which the status scores are rather low -- in the bottom third. In contrast, only half that percentage (13%) of students in non-vocational-technical programs aspire to jobs in the lowest third of the status hierarchy.

The data for those aspiring to jobs in the highest third of the occupational status ladder are equally, and correspondingly, skewed. About a third of those in non-vocational-technical programs aspire to jobs in the highest status category, while only 17% of those from vocational-technical programs hold such optimistic desires.

Data on the proportions expecting to achieve their occupational aspirations show no significant differences between those enrolled in the two types of curricula. Thus, Table 3.12 indicates that most students in vocational-technical programs and most other students feel they have a good to excellent chance of getting the job to which they aspire. The percentages in each group are very similar across all levels of certainty.

Somewhat surprisingly, there are also no significant differences in the proportions reporting "commitment to work" (see Table 3.13). Slightly less than a third of both groups state that work will be the primary activity of their lives. And about two thirds of both groups hope to be able to incorporate both homemaking and occupational roles. This question, of course, is intended mainly

Table 3.12

RELATION OF EXPECTATIONS OF ACHIEVING OCCUPATIONAL ASPIRATIONS TO ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Expectations			
	Excellent	Good	Fair	Poor
Non-vocational-technical	16.0%	53.8%	28.4%	1.8%
Vocational-technical	16.8%	57.7%	24.1%	1.4%
	206	694	352	22

Table 3.13

RELATION OF COMMITMENT TO WORK WITH ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Work Commitment		
	Working	Homemaking	Both
Non-vocational-technical	29.7%	5.2%	65.2%
Vocational-technical	28.9%	4.0%	67.1%
	380	64	843

for use in the analyses of the work plans of young women and is discussed in greater detail elsewhere in this report. The similarity in percentages of the two student groups, however, can not be ignored by vocational guidance personnel.

In a parallel fashion, the last two tables of this chapter, (Table 3.14, the relation of the importance of salary to enrollment in vocational-technical programs, and Table 3.15, the relation of importance of intrinsic pleasure from work to enrollment in vocational-technical programs) are remarkable for the two groups' similarities. There are no differences worthy of note in the two groups' responses. While both groups of students appear to have contradictory desires in what they hope to derive from work, we note that they are equally contradictory; there are no proportional differences in what vocational-technical and non-vocational-technical students consider important in work. Slightly less than two thirds of both student groups consider salary to be very important. And slightly more than two thirds of both student groups consider the intrinsic pleasure derived from work to be very important. Clearly, here also, those advising students should be aware of the similarities in what vocational-technical students and what other students want from work. In light of these findings, the assumption, for instance, that vocational-technical students have made a trade-off favoring economic over other work rewards is untenable. Moreover, those factors that motivate students to pursue one versus another program

Table 3.14

RELATION OF IMPORTANCE OF SALARY TO
ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Importance of Salary			
	Very Important	Somewhat Important	Not very Important	Not Important at all
Non-vocational-technical	63.9%	30.6%	4.5%	1.0%
Vocational-technical	63.4%	30.4%	5.8%	0.4%
	821	393	61	12

Table 3.15

RELATION OF IMPORTANCE OF INTRINSIC PLEASURE FROM
WORK TO ENROLLMENT IN VOCATIONAL-TECHNICAL PROGRAMS

Program	Importance of Intrinsic Pleasure from Work			
	Agree alot	Agree a Little	Disagree a little	Disagree alot
Non-vocational-technical	68.9%	25.2%	4.8%	1.0%
Vocational-technical	68.6%	24.2%	4.5%	2.7%
	878	319	61	17

may be very similar even though a knowledgeable observer might be aware of the different probabilities of students realizing their desires.

We have examined the characteristics, values and backgrounds of students enrolled in the two types of curricula. Many of the differences and similarities between the two groups must be considered by those advising these students and those involved with planning for program development and program recruitment. Vocational-technical programs are not perceived by the students as a dumping ground for those with no other occupational plans. Rather it is frequently a deliberate selection -- often made with the guidance of teachers and school counselors. And while the students are more likely to be of lower status backgrounds, they desire the same prestige and economic rewards from their future work.

CHAPTER FOUR: Knowledge of the World of Work and Occupational Choices of High School Students

Both the effective functioning of the economic system and the personal fulfillment of individuals depend, in part, on future workers having accurate information about the labor market. If young workers are to be attracted to occupations and jobs where their skills and abilities can be used to make the greatest contribution to the social product, then clearly they must "have a reasonably good knowledge of the range of alternatives for which they might potentially qualify and of the rewards (and costs) attached to each" (Parnes and Kohen, 1975:45). At the same time, accurate information about the existence and characteristics of a wide range of employment opportunities improves the ability of potential workers to make plans for future employment, and enhances their probabilities of realizing these goals. Moreover, to the extent that particular occupations require advance preparation and commitment, postponement or lack of an early decision to enter that field may dramatically reduce the probability that an individual will enter it at all (Kuvlesky and Bealer, 1967). It is, thus, reasonable to expect a student's knowledge of the world of work to influence his or her occupational choices and, at a later stage of life, to have a positive impact on wages earned and job satisfaction (for evidence that suggests this is indeed the case, see Parnes and Kohen, 1975).

Our measure of the extent of students' knowledge of the world of work is derived from a simple occupational information test that was included in the survey of the tenth and eleventh grade students. The series of questions used was adapted from the "knowledge of the world of work" batteries administered in the National Longitudinal Surveys of Young Men and Young Women (see, Parnes and Kohen, 1975; Parnes, Miljus, Spitz et al., 1970). These questions assess the respondents' familiarity with both the tasks performed in various jobs and the usual education of job holders. The measure of students' knowledge of the content of a variety of jobs was obtained from multiple choice questions which required students to identify the duties of seven occupations -- hospital orderly, machinist, keypunch operator, economist, department store buyer, social worker and dietician. Students were also asked to choose the amount of regular schooling individuals in these seven occupations usually have. The responses to these questions were combined into a fourteen point scale indicating the number of correct answers.

It should be acknowledged at the outset that this measure of knowledge of the world of work does not capture all of the dimensions of occupational information that may be of value to students making career choices. Severe time limitations in administering the survey instrument constrained us to focus on a more limited objective, and we chose to concentrate attention on how much students know about the job content and educational requirements of occupational

alternatives. These, after all, are two of the aspects of knowledge of the world of work likely to have the greatest influence on students' occupational aspirations.

Sources of Occupational Information

Young people find out about jobs and occupations in many ways. The educational system, in particular, provides high school students with experiences that are likely to braoden their understanding of the world of work. Often these experiences are indirect and hard to measure, as when a student develops an appreciation for what scientists do by taking a science course or for what a machinist does by taking an industrial arts course. Schools also explicitly provide vocational information and counseling -- through school programs or contact with school counselors, or informally through conversations with teachers. Students accumulate knowledge of the characteristics and requirements of various occupations in other ways as well. Young people learn about the jobs held by members of their families or by family friends. In addition, conversations with friends, watching television, general reading and actual work experience are all ways in which knowledge of the world of work is acquired.

To find out how the students in our survey learned about the occupations to which they aspire we asked the following question: "How did you find out about the job you said you would like to have

when you are about 35 years old?" The students' answers to this question are displayed in Table 4.1 and 4.2. The first of these tables shows student responses to that question broken down by personal characteristics -- sex, race and grade in school. The second shows the variations in the source of occupational information for students from different social backgrounds, with social background measured by father's education and by mother's education.

School programs and personnel emerge in Table 4.1 as an important source of occupational information for high school students. More than 12 percent of those surveyed learned about the occupation to which they aspire through programs in school about that occupation, while another 10.5 percent found out about them from a teacher or school counselor. Females are somewhat more likely than males to utilize school as a source of job information (13.8 percent of the women found out about the job they would like to have from a school program as compared with 10.3 percent of the men; 11.2 percent of the women found out from a teacher or counselor as compared with 9.5 percent of the men). School is dramatically more important to black students than to white as a source of information about jobs. Nearly twice as many black students as white (14.5 as compared with 7.7 percent) learned about their desired occupation from a program in school; and 12.8 percent of the black students learned about it from a teacher or school counselor compared with 5.2 percent of white students.

Table 4.1

"HOW DID YOU FIND OUT ABOUT THE JOB YOU WOULD LIKE TO HAVE?"
BY SEX, BY RACE AND BY GRADE IN SCHOOL

Responses	Total (%)	Male (%)	Female (%)	Black (%)	White (%)	Other (%)	Tenth (%)	Eleventh (%)
I know someone who has this kind of job	26.7	30.6	23.8	19.9	39.8	22.6	27.5	26.1
I heard about it from friends	2.9	3.5	2.4	3.1	2.7	1.9	2.5	3.3
My parents told me about it	7.6	6.5	8.4	6.7	8.9	5.7	9.8	5.5
I saw a program in school about this kind of work	12.3	10.3	13.8	14.5	7.7	18.9	12.8	11.8
I heard about it from my school counselor	5.1	2.7	6.2	6.9	1.0	9.4	4.6	5.7
I heard about it from one of my teachers	5.4	5.8	5.0	5.9	4.2	3.8	4.7	6.0
I saw someone on TV doing this kind of work	6.2	7.1	5.5	7.1	5.2	3.8	7.1	5.3
I read about it in a magazine, book or newspaper	9.8	10.3	9.5	10.5	9.1	11.3	8.8	10.8
I saw someone doing this kind of work	13.0	13.1	13.0	13.6	12.6	1.9	12.5	13.5
I had a part-time or summer job where I did this kind of work	11.0	9.1	12.4	11.7	8.9	20.8	9.8	12.1
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number in each category answering question	1,230[a]	536	694	743[b]	405	53[c]	593	637

[a]There were 62 students out of a total of 1292 who did not answer this question.

[b]There were 21 students whose ethnic group could not be ascertained.

[c]There are too few people in this category to permit meaningful analysis.

Table 4.2

"HOW DID YOU FIND OUT ABOUT THE JOB YOU WOULD LIKE TO HAVE?"
BY FATHER'S EDUCATION AND BY MOTHER'S EDUCATION

Responses	Father's Education: College Degree (%)	Some College (%)	High School Diploma (%)	No High School Diploma (%)	Don't Know (%)	Mother's Education: College Degree (%)	Some College (%)	High School Diploma (%)	No High School Diploma (%)	Don't Know (%)
I know someone who has this kind of job	33.6	27.9	27.6	25.8	22.4	30.2	27.3	27.9	24.4	20.9
I heard about it from friends	1.8	0.0	3.0	2.5	4.7	2.8	1.7	2.8	4.1	2.2
My parents told me about it	12.4	11.6	7.1	8.4	2.9	13.2	9.1	8.4	5.9	2.2
I saw a program in school about this kind of work	9.7	5.8	12.4	11.6	16.9	8.5	17.4	10.5	12.6	18.7
I heard about it from my school counselor	0.9	5.8	4.9	6.5	5.5	2.8	4.1	5.2	5.6	6.7
I heard about it from one of my teachers	0.9	5.8	5.8	5.5	5.9	2.8	5.0	5.7	5.6	6.7
I saw someone on TV doing this kind of work	8.8	8.1	5.1	4.4	7.8	5.7	5.8	6.2	5.9	6.6
I read about it in a magazine, book or newspaper	9.7	9.3	11.6	10.9	5.9	10.4	7.4	11.4	9.6	5.2

Table 4.2 (con.)

Responses	Father's Education: College Degree (%)	Some College (%)	High School Diploma (%)	No High School Diploma (%)	Don't Know (%)	Mother's Education: College Degree (%)	Some College (%)	High School Diploma (%)	No High School Diploma (%)	Don't Know (%)
I saw someone doing this kind of work	33.6	27.9	27.6	25.8	22.4	30.2	27.3	27.9	24.4	20.9
I had a part-time or summer job where I did this kind of work	14.2	5.8	10.5	9.8	14.1	10.4	11.6	11.0	9.6	14.9
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number in each category answering question	113	86	467	275	255	106	121	581	270	134

Actual work experience is another important source of information about jobs. Eleven percent of the total sample found out about their desired occupation through part-time or summer employment, with the proportions of women and blacks relying on this source of information slightly higher than 11 percent and the proportions of whites and blacks correspondingly lower.

The roles of social background as a source of occupational information can be seen in Tables 4.1 and 4.2 in responses such as knowing someone who has this kind of job, seeing someone do this kind of work, or finding out about it from parents. For all groups of students these are the most important means of finding out about jobs, though they are more important as a source of knowledge about occupations for males than for females and for whites than for blacks. Thus 50.2 percent of the young men gave one of these three answers compared with 45.2 percent of the young women, and 61.3 percent of white students relied on personal contacts for job information as compared with only 40.2 percent of black students.

Social background is indicated by father's or mother's education. Table 4.2 examines the differential importance of school programs and personnel, actual work experience, and personal contacts as sources of occupational information for students with different social backgrounds. Personal contact is, as expected, of greatest importance to students whose parents have the most education. Thus, about a third of the students with a parent with

a college degree found out about their desired occupation through knowing someone who has this kind of job. The proportion declines steadily to about a quarter of the students with a parent with less than a high school diploma and to about a fifth of the students who don't know how much education their parents have. School programs and personnel are of correspondingly greater importance as a source of labor market information for students whose parents have had less formal education. Only 11.5 percent of students whose fathers have a college degree found out about the occupation to which they aspire at school, but this proportion rises to nearly a quarter of the students whose fathers have a high school diploma or less. A similar result is apparent when mother's education is considered. Finally, actual work experience is an equally important source of occupational information for students whose fathers have a college degree and for those who do not know their mother's or father's educational level. This is probably due to the fact that, at the high end of the scale, college-educated fathers may be able to obtain good part-time or summer jobs for their children while, at the low end of the scale, children from poorer families may simply find it more necessary to work.

The important conclusion suggested by Tables 4.1 and 4.2 is that while social background plays a major role in providing all young people with occupational information, the schools have nevertheless been successful in reaching students from less-educated

families with such information. School programs and personnel are a major source of information about the world of work for such students.

Students were also asked to identify the source of information which they thought would be most helpful if they wanted to know more about jobs. The results are reported in Table 4.3. It is impressive that "school counselor" was the modal response, chosen by 469 of the students. By comparison, "parent(s)" was chosen by 200 students and "peers" by only 39 students; "reading about it," which was the second most frequent response, was chosen by 426 students. Students were also asked directly whether they felt their school counselor could help them choose a job or kind of work. As reported in Table 4.4, an overwhelming majority of the students -- 72 percent of them -- replied "yes." Here, again, the importance attached by students to school personnel as a reliable source of information about jobs and work is evident.

Determinants of the Extent of Students' Knowledge of the World of Work

In the previous section we identified social background and vocational guidance through the schools as the major sources of occupational information for high school students. Now we turn our attention to the influence of these two factors and of personal characteristics on how much students actually know about the character of and educational requirements for a variety of occupations. Scores on the knowledge of the world of work battery tend to confirm the

Table 4.3

"IF YOU WANTED TO KNOW MORE ABOUT JOBS AND WORK, WHICH OF THE FOLLOWING DO YOU THINK WOULD BE MOST HELPFUL?"

Responses	Number choosing this response	Proportion choosing this response (%)	Average number of correct answers (out of 14) on "Knowledge of the World of Work" Battery*
Parent	200	15.8	5.7
Teacher	69	5.4	5.7
School Counselor	469	37.0	5.6
Other Adult	64	5.1	7.1
Friends or Brothers or Sisters	39	3.1	6.7
Reading About It	426	33.6	6.7
Total number of students responding	1,267	100.0	6.6

*The results reported in this column will be discussed later in the chapter.

Table 4.4

"DO YOU THINK YOUR SCHOOL GUIDANCE COUNSELOR OR CAREER COUNSELOR COULD HELP YOU CHOOSE A JOB OR KIND OF WORK?"

Responses	Number choosing this response	Proportion choosing this response (%)
Yes	912	72.0
No	355	28.0
Total number of students responding	1,267	100.0

suspicion that high school students are, in fact, not knowledgeable about the world of work. The effects of personal characteristics are summarized in Table 4.5 which shows the average number of correct answers (out of 14) for blacks, whites, and others; for males and females; and for tenth and eleventh grade students. For the total sample, the average number of correct answers is 6.6 (46.9 percent right). White students fared best in the occupational information test with an average of 7.2 correct answers (51.4 percent right), while black students average 6.3 correct answers (45.0 percent right).* Differences by sex and by grade in the average number of correct answers were slight, amounting to less than half a question. However, a comparison of the proportions of students in each category who had more than seven correct answers suggests differences by race, sex and grade that are not apparent in a comparison of the means. The largest difference is between black and white students. Only about a third of the black students answered 50 percent or more of the questions correctly, compared with nearly half the white students. Males did somewhat better than females, and a larger proportion of eleventh graders than tenth were able to get 8 or more answers right.

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*This can be compared with the scores obtained by young black and white males on a more complete battery of questions in the National Longitudinal Survey of Young Men. Whites in that test averaged 63 percent right as compared with 48 percent right for blacks.

Table 4.5

AVERAGE NUMBER OF CORRECT ANSWERS BY
RACE, SEX, AND GRADE IN SCHOOL

	Total	White	Black	Other	Male	Female	Tenth Grade	Eleventh Grade
Average (mean) number of correct answers	6.6	7.2	6.3	6.1	6.7	6.5	6.3	6.8
Percentage of questions answered correct (%)	46.9	51.4	45.0	43.6	47.5	46.4	44.9	48.2
Proportion of students having more than half the answers correct (%)	40.5	47.1	32.8	33.4	40.7	34.6	34.1	40.1

The influence of social background, as measured by father's or mother's education and father's or mother's occupational status, is shown in Tables 4.6 and 4.7. As expected, children from high status families have higher scores on the occupational information test. About two-thirds of the students whose fathers have a college degree (half of those whose mothers have a college degree) answered more than half the questions correctly. The proportion declines steadily to about a third of those whose father or mother does not have a high school diploma and about a fifth of those who do not know their father's or mother's educational level. Similarly, two-thirds of the students whose father's occupational status is high, scored 8 or more correct answers compared with half the students whose fathers are in medium or low status jobs, and slightly more than a fourth of the students who don't know their father's occupation. The direction of influence of mother's occupational status is similar to that of father's occupational status, though interpretation of the actual numbers would be misleading because half the mothers are housewives.

Finally, we want to consider the influence of vocational guidance through the schools on the extent of students' knowledge of the world of work. Nearly 600 of the students surveyed (46.4% of the sample) reported that they had a personal meeting with their school guidance or career counselor to talk about choosing a program or school (Table 4.8). These choices are undoubtedly related to the career

Table 4.6

INFLUENCE OF PARENT'S EDUCATION ON STUDENTS' KNOWLEDGE OF THE WORLD OF WORK

Father's Education	Proportion of students answering more than half the questions correctly (%)
College degree	67.5
Some college	38.2
High school diploma	38.7
No high school diploma	34.4
Don't know	23.7
**********	
Mother's Education	
College degree	51.9
Some college	47.5
High school diploma	37.5
No high school diploma	36.2
Don't know	20.1

Table 4.7

INFLUENCE OF PARENT'S OCCUPATIONAL STATUS* ON STUDENTS' KNOWLEDGE OF THE WORLD OF WORK

Father's Occupational Status	Proportion of students answering more than half the questions correctly (%)
High	66.7
Medium	51.6
Low	50.4
Don't know	28.2
Military	57.1
Deceased	36.2
**********	
Mother's Occupational Status	
High	55.9
Medium	47.1
Low	29.4
Don't know	23.5
Housewife	36.1
Deceased	10.0

*Occupational status is measured by the Duncan score of the occupation. High status jobs have a Duncan score greater than 66.6, low status jobs have a Duncan score lower than 33.3, while medium status jobs have a score between 66.6 and 33.3.

and educational aspirations of the students and it seems reasonable to suppose that such aspirations were discussed at such a meeting. We would like to know, therefore, how students who have seen their counselor for this kind of guidance score on the occupation information test as compared to students who have not had a personal meeting with their counselor. Table 4.8 presents the findings for the entire sample, and for the sample broken down according to the status of the father's occupation. The results indicate that counselors provide personal guidance to a substantial proportion of all students, but that they see a larger proportion of children from lower status families. The proportion of students who have had a personal meeting with their counselor increases monotonically from 39 percent of those from high status families to 43.6 percent of those from medium status families and 48.2 percent of those from low* status families. Within each category, students who had personal meetings with their counselors to discuss programs or schools had a higher score on the knowledge of the world of work battery than those who didn't. Among students from high status families, those who met with their counselors averaged 8.4 questions correct, while those who did not averaged 7.3; for students from medium status families the average numbers of correct answers were 7.5 and 7.1 respectively; and for students from low status families they were 6.3 and 5.9. However, the results indicate that while students who receive personal

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*includes students who don't know their father's occupation

Table 4.8

"HAVE YOU EVER HAD A PERSONAL MEETING WITH YOUR SCHOOL GUIDANCE OR CAREER COUNSELOR TO TALK ABOUT CHOOSING A PROGRAM OR A SCHOOL?"
by FATHER'S OCCUPATIONAL STATUS

	FATHER'S OCCUPATIONAL STATUS											
	TOTAL			HIGH			MEDIUM			LOW OR DON'T KNOW		
	Number choosing this response	Average # of correct answers on knowledge of the world of work	Proportion of students answering more than half the questions correctly (%)	Number choosing this response	Average # of correct answers on knowledge of the world of work	Proportion of students answering more than half the questions correctly (%)	Number choosing this response	Average # of correct answers on knowledge of the world of work	Proportion of students answering more than half the questions correctly (%)	Number choosing this response	Average # of correct answers on knowledge of the world of work	Proportion of students answering more than half the questions correctly (%)
YES	594 (46.4%)	6.7	39.1	41 (39.0%)	8.4	68.3	122 (43.6%)	7.5	47.6	431 (48.2%)	6.3	34.0
NO	685 (53.6%)	6.4	36.1	64 (61.0%)	7.3	65.6	158 (56.4%)	7.1	41.7	463 (51.8%)	5.9	30.0

counseling did better than those who did not, social background (as measured by father's occupational status) remains a powerful influence on knowledge of the world of work.

The Effect of Knowledge of the World of Work on Occupational and Educational Aspirations

As we showed earlier, in Chapter 2, the extent of a student's knowledge of the world of work significantly affects both occupational aspirations and expectations and educational aspirations and expectations. That is, knowledge of the world of work has an effect upon the educational goals of high school students that manifests itself over and above the effects of social background variables and personal characteristics -- parent's education,* parent's occupational status,* race and sex. For this reason, knowledge of the world of work is an important policy variable. Unlike the other important influences on occupational (and educational) aspirations, personal characteristics and social background, knowledge of the world of work can be affected by educational policy and practice. Vocational counseling and career education programs can, as we have seen in the preceeding sections, increase the extent of a student's information about the characteristics of alternative occupations.

Table 4.9 shows the bivariate relationship between knowledge of the world of work and occupational aspirations and expectations.

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*This is the occupation and education of the parent with the highest occupational status, or highest educational attainment.

Table 4.9

RELATIONSHIP BETWEEN KNOWLEDGE OF THE WORLD OF WORK AND OCCUPATIONAL ASPIRATIONS AND EXPECTATIONS

Knowledge of World of Work	Occupational Aspirations						Occupational Expectations					
	High	Medium	Low	Don't Know	Military	Housewife	High	Medium	Low	Don't Know	Military	Housewife
Average number of correct answers	7.7	6.2	5.8	5.0	7.2	6.1	7.8	6.5	6.0	6.0	7.6	6.2
Proportion of students having more than half the answers correct (%)	55.4	31.7	27.0	25.0	50.0	23.6	56.0	35.7	31.3	29.8	69.2	32.2
Number of students in category	352	641	174	28	12	55	232	487	163	195	13	90
	N=1,262						N=1,180					

Table 4.10

RELATIONSHIP BETWEEN KNOWLEDGE OF THE WORLD OF WORK AND EDUCATIONAL ASPIRATIONS AND EXPECTATIONS

Knowledge of World of Work	Educational Aspirations						Educational Expectations					
	Not Finish High School	Finish High School	Tech School	Some College	College Degree	Grad School	Not Finish High School	Finish High School	Tech School	Some College	College Degree	Grad School
Average number of correct answers	5.3	5.4	5.1	5.9	6.5	7.9	6.7	5.7	6.1	6.0	7.0	7.9
Proportion of students having more than half the answers correct (%)	9.1	22.7	24.5	30.3	36.8	59.6	28.6	26.6	27.0	30.5	40.8	60.6
Number of students in category	11	194	253	109	389	327	21	335	282	105	309	231
	N=1,283						N=1,283					

The previously identified relationship between knowledge of the world of work and occupational aspirations shows up clearly here with the more informed students aspiring to (or expecting to hold) higher status occupations. A similar monotonic relationship between knowledge of the world of work and educational aspirations and expectations can be observed in Table 4.10. Students who aspire to graduate school do, in fact, appear to be more knowledgeable about the characteristics of occupations than those who aspire to earn a high school diploma.

Conclusion

The extent of students' knowledge of the world of work has a strong positive influence on occupational aspirations and expectations and on educational aspirations and expectations that is identifiable not only in the bivariate analysis but in the multiple regression in which we statistically controlled for the effects of parents' education and occupational status and student's race, sex and grade in school. Thus knowledge of the world of work is an important policy variable.* We have found that students in tenth and eleventh

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*The coefficient of parent's education in the regression equation for the determinants of occupational aspirations (Table 1; Chapter 2) is 3.19, while the coefficient of knowledge of the world of work is 1.96. Since parent's education takes on four values (there are three intervals) the occupational aspirations of students from families in which at least one parent has a college degree are about 10 points higher on the prestige scale than students whose parents have less than a high school education. Knowledge of the world of work is a fifteen point scale (there are fourteen inter-

grade view school programs and personnel as reliable sources of information about the characteristics of occupations, and the educational requirements associated with jobs. Moreover, we found that nearly half the students in our sample had had a personal meeting with their school counselor to discuss the choice of programs and schools; and that students who had such a meeting with their counselors tended to score higher on the occupational information test. There is, thus, reason to believe that school programs and one-to-one vocational guidance by school counselors is an effective means of increasing students' information about alternative occupations.

On the negative side, it must be acknowledged that the average score of students who had seen their counselors was only slightly higher than that of students who had not. And, while personal counseling narrowed the information gap between students from low status and high status families, it did not eliminate it.

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vals). Hence the occupational aspirations of a student with a perfect score on the occupational information test will be nearly 28 points higher on the prestige scale than the aspirations of a student who gets none of the questions right. Caution must be used in interpreting and using these results, however, because parent's education has a significant influence on the extent of students' knowledge of the world of work (see Table 3, Chapter 2).

APPENDIX to Chapter 4: Perception of Guidance Counselors' Help in Job Selection: Eighth through Eleventh Grade Students

The relationship of ethnicity and of sex to students' perceptions of guidance counselors in job selection has not previously been examined for both cohorts. Here we examine two tables that allow us to explore these variables. Table 4A.1, Relation of Perceived Helpfulness of School Guidance or Career Counselor in Job Selection by Ethnicity, indicates the responses of both eighth and ninth graders and tenth and eleventh graders. The most striking finding is the degree of positive response by all groups. Beyond that, the consistency across grades is also noteworthy. In both cohorts about three-fifths of the white students and three-fourths of the black students indicate that their school guidance or career counselor could help them "choose a job or kind of work."

Table 4A.2 presents the same question crosstabulated by sex. Again, the degree of positive response is the most remarkable characteristic. Further, the differences between the sexes' perceptions are small, with most females responding slightly more favorably about the helpfulness of counselors than the males.

Table 4A.1

RELATION OF PERCEIVED HELPFULNESS OF SCHOOL GUIDANCE OR CAREER COUNSELORS IN JOB SELECTION BY ETHNICITY

	8th & 9th graders*			10th & 11th graders		
Ethnicity	Helpful	Not helpful	N	Helpful	Not helpful	N
White	59.5%	39.4%	373	60.8%	39.2%	441
Black	74.2%	24.4%	624	77.1%	22.9%	770
Other	73.2%	26.8%	56	77.4%	22.6%	53
			1,053			1,234

*Percents do not equal 100 because a few cases with "don't know" responses were included in calculations but are not shown in the table above.

Table 4A.2

RELATION OF PERCEIVED HELPFULNESS OF SCHOOL GUIDANCE OR CAREER COUNSELOR IN JOB SELECTION BY SEX

	8th & 9th graders*			10th & 11th graders		
Sex	Helpful	Not helpful	N	Helpful	Not helpful	N
Male	66.6%	32.4%	491	68.0%	32.0%	544
Female	71.0%	27.6%	562	75.0%	25.0%	723
			1,053			1,267

*Percents do not equal 100 because a few cases with "don't know" responses were included in calculations but are not shown in the table above.

CHAPTER FIVE: Summary and Discussion

Two divergent and potentially contradictory views of the role of education in a democratic society characterize the demands that both educators and the public have made on the educational system. The purpose of education, in the traditional view, is to enable every individual to develop his/her potential to the fullest extent and to prepare for a satisfying and productive life. The goals of the educational system, from this perspective, are to provide young people with a set of democratic values, basic skills in mathematics and communication, an understanding of the nature of their physical and social environment, an appreciation of the culture and history of mankind, and an awareness of their responsibilities as citizens (cf., Schaefer and Kaufman, 1971). While the indirect contribution of education to the economic welfare of the nation is acknowledged, the primary purpose of education from this point of view, is to afford each individual the opportunity for broad intellectual and cultural development.

In the early years of the twentieth century, a competing view of the purpose of education emerged -- that of increasing "the efficiency of industrial society by the proper selection and channeling of national manpower resources" (Spring, 1976:2). From this perspective, the educational system is viewed as "a

'brain power industry' whose social function is to develop human beings as instruments for building national economic and military strength" (Coombs, 1960:26). This view of the educational system as a "sorting machine" whose primary purpose is to provide an increasingly sophisticated business and industrial structure with appropriately trained manpower led to several important educational innovations in the early decades of this century. These included the junior high school, whose original purpose was to facilitate the differentiation of students into separate courses of study according to abilities and vocational goals; vocational guidance; intelligence testing and the grouping of students according to ability; and the separation of high school students into differentiated curricula according to future occupations. Schools were given "the responsibility for determining student abilities and interests and channeling students through an educational program that would lead them to a specific slot in the national labor force" (Spring, 1976:2).

While the two views of education are not mutually exclusive, they do imply divergent sets of priorities. The dominant focus of national educational policy since World War II has been on the manpower channeling aspects of education. Ability grouping in the junior high schools and vocational differentiation within the high schools already existed, but these features of the educational system were strengthened after 1945. The manpower needs of the

cold war and the resultant national concern with the discovery and education of talented youth led to the National Defense Education Act of 1958 which provided funds for improved testing programs, for guidance and counseling services, and for the teaching of science and mathematics to academically oriented youngsters. National concern over the persistent joblessness of young people in the late fifties and early sixties resulted in passage of a national Vocational Education Act in 1963. Federal expenditures for vocational education, which amounted to $48 million in 1961, increased to $225 million annually by the end of that decade. Following the student protests of the late sixties and early seventies and the continued high unemployment of young people, federal support for education was broadened in the 1972 amendments to the Elementary and Secondary Education Act to include career education. Thus national education policies in the last three decades, embodied in federal support for vocational guidance, tracking in the comprehensive high schools, vocational education programs and vocational high schools, and career education programs have emphasized the manpower channeling functions of the educational system, rather than its role in developing creative and informed individuals. Policies such as those supported by the Federal government, however, need not necessarily conflict with the role of education in contributing to the development of the individual. Enabling individuals to realize

fully their potentialities clearly encompasses preparing them to engage in productive activity, both in order to earn income and for the satisfaction which creative activity brings. And yet, a conflict does exist.

A major source of this conflict between the disparate roles that education plays can be found in the failure of the economic system to provide meaningful jobs at adequate wages in sufficient number to employ the entire labor force. As a consequence of this failure the educational system finds itself, despite whatever efforts it makes, channeling large numbers of young people into unrewarding, unproductive lives on the margins of corporate society. The educational system finds itself charged with sorting out the winners and losers in the good life contest, with the fact that there will be losers conditioned not on its own performance but on the performance of the economic system. Given the shortage of adequate jobs and a labor market whose structure is segmented and hierarchical, an educational system oriented toward the channeling of national manpower resources will find itself unable to provide children and youth with equality of opportunity for either personal development or economic rewards. It will function, whatever its motives, to channel young people into social and economic roles largely predetermined by their race, sex and/or class status. And it will be seen by the urban poor and by minority group members as a major impediment to meaningful jobs for their children.

It is in this context that the wide disparity between the occupational aspirations and expectations of students in the Philadelphia secondary schools and the job opportunities in the Philadelphia metropolitan area, which was reported in Chapter One, must be appraised. A comparison of the aspirations of eleventh grade students (which are more modest and more realistic than those of younger students) with employment opportunities projected for 1985 clearly reveals the dimensions of the problem. Forty-three percent of eleventh grade students would like professional or technical careers, while only 15 percent of the jobs in 1985 will be in those occupations. Conversely, only seven percent of the students aspire to employment as sales or service workers, while 20 percent of the jobs are in those fields. Furthermore, only four percent of the students want to work as operatives or laborers while another 20 percent of the jobs expected to be available in 1985 are of this type. The proportions of students aspiring to jobs in managerial, craft and clerical occupations are more closely aligned with projected job openings. Occupational expectations, while skewed more heavily toward the less prestigious occupations than occupational aspirations, are nevertheless much higher than anticipated employment opportunities. Thus, 33 percent of the students expect to have professional or technical careers, while nine percent expect to be employed in sales or service occupations and only four percent expect to be employed as operatives or laborers.

The fact that secondary school students aspire, in large numbers, to high status, remunerative careers is reflected in the associated educational requirements. We found that 38 percent of the students aspire to jobs that require a bachelors degree or higher while only 19 percent desire jobs requiring no more than a high school diploma. Moreover, 54 percent of the younger students and 42 percent of the older students expect to earn a bachelors degree. At the same time, only 15 percent of average annual job openings expected in the Philadelphia area between 1974 and 1985 are in occupations requiring at least a bachelors degree while 50 percent of the jobs require no more than a high school diploma.

Ideally, schooling is supposed to be structured so that it simultaneously facilitates individual achievement and meets the manpower needs of the community. But as the comparison of student aspirations and employment opportunities presented in Chapter One graphically illustrates, these twin missions of public education are likely to be mutually antagonistic.

It is clear, of course, that the educational system cannot influence the distribution of jobs available. Nevertheless, it has both the opportunity and the obligation to provide students with accurate information about occupations and employment prospects, and to play a role in the formation of students' career and educational plans. Students' aspirations differ systematically with race, sex and socioeconomic background. But these, we found, are not the only

influences on students' plans. Students with differing familiarity with the world of work also have significantly different career plans. Moreover, we found that school programs and personnel are an important source of this kind of knowledge for young people.

In Chapters Two through Four of this document we examined the various influences on occupational and educational plans with particular emphasis on the role of students' knowledge of the world of work and perceived effectiveness of vocational guidance programs in the schools. One chapter (Chapter Three) compares characteristics, perceptions and desires of students enrolled in vocational technical programs with students in all other programs. Those involved in counseling or guidance, in planning programs and facilities, and in career education -- as well as those involved in the transition from school to work -- should find these data especially helpful.

In an analysis of the determinants of students' scores on the Knowledge of the World of Work battery we found the rather predictable positive relation between parental status and students' scores. However, when we looked at the role of knowledge of the world of work scores in affecting educational and occupational plans the results were somewhat unexpected. Even when we controlled for social background, the knowledge of the world of work score significantly and positively influenced educational aspirations, educational expectations, occupational aspirations and occupational expectations. These findings, further, have immediate policy

implications; students can be taught more about the labor markets, the tasks performed by differing types of workers, and the educational requirements of occupations. Moreover, the results of such an endeavor are promising given our findings on the universality of the effect. That is, the influence of knowledge of the world of work was positive and significant even when controlling for background.

We also explored the extent to which work-related values are associated with educational and occupational plans. In general, we found that students' attitudes and values appear to influence educational plans more than they influence occupational plans. We suggested that this was reasonable in light of the closer temporal relationship. Students, after all, are more concerned about those events in the immediate rather than distant future. For most, it is continuing education that demands their attention. The policy implications of this finding, however, should not be trivialized. It is the responsibility of the school system to present the interplay of career and educational plans to the students. The teachers, counselors and vocational guidance personnel are obviously more aware of the larger and interdependent reality than are the students. Further, the same programs that attempt to enhance the students' familiarity with the work world could easily incorporate discussions of work-education relationships.

We have found that students' expectations of what jobs they will hold are influenced by the socioeconomic position of their parents. This relationship exists even when controlling for students'

race, sex, grade and several occupationally-related values. By contrast, there is far less of a relationship between parental socioeconomic status and the students' occupational aspirations. We suggest, further, that the fact that parental status influences occupational expectations but fails to influence occupational aspirations reflects the dichotomy between the ideology of an open meritocracy and the reality-grounded expectations of social and economic limitations to success. That is, students from all levels of society aspire to prestigious jobs, but more students from high socioeconomic position expect to hold prestigious jobs. In Chapter Three, we examined the differences and similarities between those enrolled in vocational-technical programs and those enrolled in the other programs of the Philadelphia School system. We found that the programs' enrollments were remarkably similar in their proportions of each racial group. On the other hand, socioeconomic background dramatically influences the enrollment distribution of students in vocational-technical versus all other programs. Those from lower social status families are more likely to be pursuing vocational-technical degrees than those of more prestigious families.

Vocational-technical students are as knowledgeable about the world of work as those in the traditional curricula. Further, vocational-technical students were more likely to seek career or educational advice from what we would regard as better informed sources of occupational information (e.g., teachers, counselors, school programs) than the students in the conventional programs.

This purposefulness of vocational-technical students was also seen in the influences on school selection, where the more directed and deliberate nature of their choices was obvious.

In a general analysis of the students' occupational selection process and the role of knowledge of the world of work (Chapter Four), school programs and guidance personnel emerged as an important source of information for students. School programs and personnel were somewhat more important sources for females than for males and dramatically more important for black students than for white. For all students, knowing someone who has a particular job, seeing someone do a particular job, and having parents talk about an occupation are the most frequently cited sources of career selection. Although, among those from more educated parents, "personal contact" is more likely to be a significant factor than among the children of the less educated.

Students' responses to a question about the most helpful source of career information, and to a directed question on school counselors as helpful sources, strongly indicates a very positive perception of school counselors. "School counselors" was the modal response to the general question and were regarded as "helpful" by 72% of the sample in the directed question.

The knowledge of the world of work data show the students' deep ignorance of labor market activity. Comparisons among students of differing social or racial characteristics indicates mainly the

departures from the overall poor battery scores. In general most students got about half the questions wrong. Males did somewhat better than females, students in the higher grades did somewhat better than those in the lower grades. White students, on average, were considerably more knowledgeable than black students about the world of work, and those from families with fathers in more prestigious jobs tended to score better than those from lower status families.

Lastly, we examined the relationship between social status and the number of students who had personal meetings with guidance counselors. The findings are heartening in that those who are probably most in need of such meetings are the most likely to have participated in them. That is, a higher proportion from those of modest social standing met with guidance counselors than did those from more affluent backgrounds.

Policies toward vocational education and indeed toward all forms of schooling must be examined in the gray areas: between helping the student make a living and involving him in an educational con game with no job to reward his or her efforts; between preparing the student for active citizenship and setting him up for disillusion and alienation; between providing an appreciation of rich and diverse cultures and certification for jobs in a highly technical world.

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APPENDIX: Questionnaires

Questionnaire Administered to Eighth and Ninth Grade Students

NAME _____

ETHNICITY 0 WHITE 0 BLACK 0 AMERICAN INDIAN
0 ORIENTAL 0 SPANISH SURNAME 0 OTHER

SEX 0 MALE 0 FEMALE

SCHOOL _____

GRADE _____

ADVISORY ROOM NUMBER _____

BIRTH DATE _____ TODAY'S DATE _____

FOR OFFICE USE ONLY
DO NOT WRITE IN THIS SPACE

ID		1-7
CARD 1	1	8
		9
		10
		11-13
		14
		15-18
		19-22

YOU OFTEN HEAR THE QUESTION, "WHAT WOULD YOU LIKE TO BE WHEN YOU GROW UP?", WHICH REALLY MEANS WHAT KIND OF JOB DO YOU WANT TO HAVE WHEN YOU ARE AN ADULT. THIS QUESTIONNAIRE IS ABOUT JOBS AND SOME OF THE CHOICES WE MAKE IN RELATION TO JOBS.

THIS IS NOT A TEST. NO GRADES WILL BE GIVEN. YOUR ANSWERS, HOWEVER, ARE VERY IMPORTANT. THEY WILL HELP US DESIGN THE HIGH SCHOOL PROGRAM THAT YOU WANT AND THAT WILL LEAD TO A BETTER CHANCE OF YOUR GETTING A GOOD JOB.

FOR EACH QUESTION, SELECT ONE ANSWER AND FILL IN THE BUBBLE NEXT TO IT.

DO NOT WRITE IN THIS SPACE

A.M.		23-24
INTERVIEWER		25-26
CODER		27
C.T.		28-33
Z		34-35
C--R. M		36-44

1. What would you like to be doing when you are about 35 years old?

0 (1) working
0 (2) keeping house and raising a family
0 (3) both--working plus keeping house and raising a family

45

2. What kind of job would you like to have when you are about 35 years old?

_____

(You may answer housewife if that is what you would like to be doing.)

C 46-48

3. Do you have a second choice for the job you would like to be doing when you are about 35 years old?

_____

C 49-51

FOR GIRLS ONLY

4. Do you plan to work after you finish school?

0 (1) yes 0 (2) no

52

5. Do you plan to work when your children are young (under 6 years old)?

0 (1) yes 0 (2) no 0 (3) don't plan to have children

53

6. Do you plan to work when your children are in school?

0 (1) yes 0 (2) no 0 (3) don't plan to have children

54

7. Do you plan to work when your children are grown up?

0 (1) yes 0 (2) no 0 (3) don't plan to have children

55

PEOPLE LIKE DIFFERENT THINGS ABOUT THEIR JOBS. TELL US HOW IMPORTANT EACH OF THE FOLLOWING IS TO YOU. FILL IN THE BUBBLE NEXT TO THE STATEMENT THAT IS CLOSEST TO THE WAY YOU FEEL

	FOR OFFICE USE ONLY. DO NOT WRITE IN THIS SPACE
8. How important is it to you that the occupation you choose pays well? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	56
9. How important is it to you that the occupation you choose gives you a lot of respect from others? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	57
10. How important is it to you that the occupation you choose may make you famous? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	58
11. How important is it to you that the occupation you choose gives you a chance to help people? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	59
12. How important is it to you that the occupation you choose gives you a chance to meet people? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	60
13. How important is it to you that you don't have to stay in school for a long time to prepare for the occupation you choose? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	61
14. How important is it to you that the occupation you choose gives you a chance to use your special talent or ability? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	62
15. How important is it to you that the occupation you choose offers steady work, and you are less likely to be fired? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	63
16. How important is it to you that the occupation you choose is the kind of job where you can set your own hours? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	64
17. How important is it to you that the occupation you choose offers very interesting work? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	65
18. How important is it to you that the occupation you choose gives you a chance to be your own boss? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	66

	FOR OFFICE USE ONLY. DO NOT WRITE IN THIS SPACE
19. How important is it to you that the occupation you choose gives you a chance to work with people? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	67
20. How important is it to you that the occupation you choose gives you a chance to work outdoors? 0 (1) very important 0 (2) somewhat important 0 (3) not very important 0 (4) not important at all	68
21. Do you plan to work in the Philadelphia city or suburbs after completing your education? 0 (1) yes 0 (2) no	69
22. If it is very hard for you to find a job in the Philadelphia city or suburbs, would you move to another part of the country to look for work? 0 (1) yes 0 (2) no	70
THERE ARE MANY WAYS IN WHICH PEOPLE FIND OUT ABOUT THE DIFFERENT KINDS OF JOBS. THEY USE THE INFORMATION TO HELP THEM MAKE UP THEIR MINDS ABOUT WHAT THEY WOULD LIKE TO BE DOING WHEN THEY ARE OUT OF SCHOOL.	
23. How did you find out about the job you said you would like to have when you are about 35 years old? (Select the most important answer and fill in the bubble next to it.) 0 (1) I know someone who has this kind of job 0 (2) I heard about it from my friends 0 (3) My parents told me about it 0 (4) I saw a program in school about this kind of work 0 (5) I heard about it from the school counselor 0 (6) I heard about it from one of my teachers 0 (7) I saw someone on TV doing this kind of work 0 (8) I read about it in a magazine, book or newspaper 0 (9) I saw someone doing this kind of work 0 (10) I had a part-time or a summer job where I did this kind of work. 0 (11) other_____	71-72
OFTEN YOU TAKE DIFFERENT KINDS OF COURSES OR HIGH SCHOOL PROGRAMS TO HELP YOU PREPARE FOR THE JOB THAT YOU WANT.	
24. What high school will you be attending when you are in the tenth grade? _____	73-75
25. What course selection will you be taking in the tenth grade? 0 (1) vocational 0 (2) academic 0 (3) general 0 (4) commercial 0 (5) don't know	76
26. If you do not plan to take a vocational or commercial program, do you plan to take any vocational or commerical courses? 0 (1) yes 0 (2) no 0 (3) don't know 0 (4) I plan to take a vocational or commercial program	77
27. Did you take an algebra course last year? 0 (1) yes 0 (2) no	78
28. Are you taking an algebra course this year? 0 (1) yes 0 (2) no	79

	FOR OFFICE USE ONLY. DO NOT WRITE IN THIS SPACE
29. Will you be taking an algebra course next year? 0 (1) yes 0 (2) no 0 (3) don't know	80
	END CARD 1
	BEGIN CARD 2
	ID 1-7
30. Why did you select the school you will be attending in tenth grade? (Select the most important answer and fill in the bubble next to it.) 0 (1) I was assigned to that school 0 (2) It offers a program that I want to take 0 (3) My friends are going there 0 (4) It is near where I live 0 (5) My parents want me to go there 0 (6) It's supposed to be a good school	CARD 2 8 9
31. Why did you choose the course selection you will be taking in tenth grade? 0 (1) It will help prepare me for the job I would like to have as an adult 0 (2) I have friends who will be in that program 0 (3) My parents want me to take that program 0 (4) I was assigned to that program	10
32. Has your school guidance counselor or career counselor ever talked to your class about choosing a program or a school? 0 (1) yes 0 (2) no	11
33. Have you ever had a personal meeting with your school guidance or career counselor to talk about choosing a program or a school? 0 (1) yes 0 (2) no	12
34. Who set up this meeting with your school guidance or career counselor? 0 (1) I asked to see him or her 0 (2) The guidance or career counselor called me into his/her office 0 (3) I have never had a personal meeting with the guidance or career counselor	13
35. Do you think your school guidance or career counselor could help you choose a job or a kind of work? 0 (1) yes 0 (2) no	14
36. How much education do you think you will get? 0 (1) I will not finish high school 0 (2) finish high school 0 (3) go to business, technical or nursing school 0 (4) go to college for awhile 0 (5) go to college and graduate from college 0 (6) go to graduate school (for example, medical school, law school, master's degree or doctorate	15
37. If you had good enough grades and enough money to keep going to school, how far would you like to go in school? 0 (1) I would not finish high school 0 (2) I would graduate from high school 0 (3) I would go to a business, technical or nursing school 0 (4) I would go to college for awhile 0 (5) I would graduate from college 0 (6) I would go to graduate school or professional school	16
38. Do you think you know enough about the kinds of jobs there are and how much they pay? 0 (1) yes 0 (2) no	17
39. Do you think you know enough about how to prepare for the job you want? 0 (1) yes 0 (2) no	18

FOR OFFICE USE ONLY. DO NOT WRITE IN THIS SPACE

40. If you wanted to know more about jobs and work, which of the following do you think would be most helpful? (Choose one answer.)

0 (1) your parents (or parent)
0 (2) your teachers
0 (3) your school counselors
0 (4) some other adult
0 (5) your friends or brothers or sisters
0 (6) reading about it — 19

WE'D LIKE YOUR OPINION ABOUT THE KIND OF WORK YOU WOULD LIKE TO BE DOING WHEN YOU ARE AN ADULT. THAT IS, WE WOULD LIKE TO KNOW MORE ABOUT THE JOB YOU SAID YOU WOULD LIKE IN QUESTION 2.

41. What do you think your chances are of actually getting into this kind of work?

0 (1) excellent
0 (2) good
0 (3) fair
0 (4) poor — 20

42. Are most of the people in this occupation men or women?

0 (1) men 0 (2) women 0 (3) don't know — 21

43. How much education do people in this occupation usually have?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some training after graduating from high school (for example, technical school, business school, aprenticeship program)
0 (4) some college
0 (5) college degree
0 (6) don't know — 22

44. Do most of the people in the occupation you have chosen earn more, less, or the same as a teacher?

0 (1) more 0 (2) less 0 (3) the same — 23

45. Do most of the people in the occupation you have chosen earn more, less, or the same as a department store sales woman?

0 (1) more 0 (2) less 0 (3) the same — 24

46. Do most of the people in the occupation you have chosen earn more, less, or the same as a lawyer?

0 (1) more 0 (2) less 0 (3) the same — 25

47. How many brothers and sisters do you have? — 26-27

48. Are you the oldest child in your family?

0 (1) yes 0 (2) no — 28

49. What is your father's occupation? — C

0 (1) deceased 0 (2) don't know — 29-31

50. How much regular schooling do you think your father has?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (5) don't know — 32

FOR OFFICE USE ONLY DO NOT WRITE IN THIS SPACE

51. What is your mother's occupation? (You may answer housewife if your mother doesn't usually work outside her home.)

C 33-35

0 (1) housewife 0 (2) deceased 0 (3) don't know

52. How much regular schooling do you think your mother has?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (5) don't know

36

53. Sometimes it is not possible to get the job that you would most like. Realistically, what job or kind of job do you think you will have when you are about 35 years old?

C 37-39

FOR EACH OF THE FOLLOWING SENTENCES, FILL IN THE BUBBLE NEXT TO THE STATEMENT THAT COMES CLOSEST TO THE WAY YOU FEEL

54. The most important part of work is the pleasure which comes from doing it.

0 (1) agree a lot 0 (2) agree a little
0 (3) disagree a little 0 (4) disagree a lot

40

55. When I make plans I usually find that I can make them work.

0 (1) agree a lot 0 (2) agree a little
0 (3) disagree a little 0 (4) disagree a lot

41

56. I would rather take a job I didn't like than receive money from the unemployment office.

0 (1) agree a lot 0 (2) agree a little
0 (3) disagree a little 0 (4) disagree a lot

42

57. It's who you know and not what you know that's important in getting a job.

0 (1) agree a lot 0 (2) agree a little
0 (3) disagree a little 0 (4) disagree a lot

43

58. I have a good idea of what kind of job I would enjoy doing as an adult.

0 (1) agree a lot 0 (2) agree a little
0 (3) disagree a little 0 (4) disagree a lot

44

59. I get better grades in school when I work harder

0 (1) agree a lot 0 (2) agree a little
0 (3) disagree a little 0 (4) disagree a lot

45

60. If I can't find a job, I see nothing wrong with receiving money from the unemployment office.

0 (1) agree a lot 0 (2) agree a little
0 (3) disagree a little 0 (4) disagree a lot

46

61. Whether or not a person is successful depends on hard work, luck has little or nothing to do with it.

0 (1) agree a lot 0 (2) agree a little
0 (3) disagree a little 0 (4) disagree a lot

47

Questionnaire Administered to Tenth and Eleventh Grade Students

NAME_____

ETHNICITY 0 WHITE 0 BLACK 0 AMERICAN INDIAN
0 ORIENTAL 0 SPANISH SURNAME 0 OTHER

SEX 0 MALE 0 FEMALE

GRADE_____

BIRTH DATE_____
Month Day Year

AGE_____

FOR OFFICE USE ONLY
DO NOT WRITE IN THIS SPACE.

CARD 1	1
	1
	2
	3
	4
	5-10
	11-12

DO NOT WRITE IN THIS SPACE

SCHOOL	13-15
SYSTEM I.D.	16-22
SEQUENCE	23-26
A.N. + NO.	27-30
INTERVIEWER	31-32
CODER	33
C.T.	34-39
Z	40-41
C--R, M	42-50

YOU OFTEN HEAR THE QUESTION, "WHAT WOULD YOU LIKE TO BE WHEN YOU GROW UP?", WHICH REALLY MEANS WHAT KIND OF JOB DO YOU WANT TO HAVE WHEN YOU ARE AN ADULT. THIS QUESTIONNAIRE IS ABOUT JOBS AND SOME OF THE CHOICES WE MAKE IN RELATION TO JOBS.

THIS IS NOT A TEST. NO GRADES WILL BE GIVEN. YOUR ANSWERS, HOWEVER, ARE VERY IMPORTANT. THEY WILL HELP US DESIGN THE HIGH SCHOOL PROGRAM THAT YOU WANT AND THAT WILL LEAD TO A BETTER CHANCE OF YOUR GETTING A GOOD JOB.

FOR EACH QUESTION, SELECT ONE ANSWER AND FILL IN THE BUBBLE NEXT TO IT.

1. What would you like to be doing when you are about 35 years old?

0 (1) working
0 (2) keeping house and raising a family
0 (3) both--working plus keeping house and raising a family — 51

2. What kind of job would you like to have when you are about 35 years old?

_____
(You may answer housewife if that is what you would like to be doing.) — 52-54

3. How much education do people in this occupation usually have?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some training after graduating from high school (for example, technical school, business school, apprenticeship program)
0 (4) some college
0 (5) college degree
0 (9) don't know — 55

4. Are most of the people in this occupation men or women?

0 (1) men 0 (2) women 0 (9) don't know — 56

5. What do you think your chances are of actually getting into this kind of work?

0 (1) excellent
0 (2) good
0 (3) fair
0 (4) poor — 57

6. How did you find out about the job you said you would like to have when you are about 35 years old? (Select the most important answer and fill in the bubble next to it.)

0 (1) I know someone who has this kind of job
0 (2) I heard about it from my friends
0 (3) My parents told me about it
0 (4) I saw a program in school about this kind of work
0 (5) I heard about it from my school counselor
0 (6) I heard about it from one of my teachers
0 (7) I saw someone on TV doing this kind of work
0 (8) I read about it in a magazine, book or newspaper
0 (9) I saw someone doing this kind of work
0 (10) I had a part-time or summer job where I did this kind of work — 58-59

FOR OFFICE USE ONLY. DO DO WRITE IN THIS SPACE.

7. Do you have a second choice for the job you would like to be doing when you are 35 years old? What is it?

60-62

PEOPLE LIKE DIFFERENT THINGS ABOUT THEIR JOBS. TELL US HOW IMPORTANT EACH OF THE FOLLOWING IS TO YOU. FILL IN THE BUBBLE NEXT TO THE STATEMENT THAT IS CLOSEST TO THE WAY YOU FEEL.

8. How important is it to you that the occupation you choose pays well?

O (1) very important
O (2) somewhat important
O (3) not very important
O (4) not important at all

63

9. How important is it to you that the occupation you choose gives you a lot of respect from others?

O (1) very important
O (2) somewhat important
O (3) not very important
O (4) not important at all

64

10. How important is it to you that the occupation you choose may make you famous?

O (1) very important
O (2) somewhat important
O (3) not very important
O (4) not important at all

65

11. How important is it to you that you don't have to stay in school for a long time to prepare for the occupation you choose?

O (1) very important
O (2) somewhat important
O (3) not very important
O (4) not important at all

66

12. How important is it to you that the occupation you choose offers steady work, and you are less likely to be fired?

O (1) very important
O (2) somewhat important
O (3) not very important
O (4) not important at all

67

13. How important is it to you that the occupation you choose is the kind of job where you can set your own hours?

O (1) very important
O (2) somewhat important
O (3) not very important
O (4) not important at all

68

14. How important is it to you that the occupation you choose offers very interesting work?

O (1) very important
O (2) somewhat important
O (3) not very important
O (4) not important at all

69

15. How important is it to you that the occupation you choose gives you a chance to be your own boss?

O (1) very important
O (2) somewhat important
O (3) not very important
O (4) not important at all

70

FOR GIRLS ONLY

16. Do you plan to work after you finish school?

O (1) yes O (2) no

71

17. Do you plan to work when your children are young (under 6 years old)?

O (1) yes O (2) no O (3) don't plan to have children

72

18. Do you plan to work when your children are in school?

O (1) yes O (2) no O (3) don't plan to have children

73

19. Do you plan to work when your children are grown up?

O (1) yes O (2) no O (3) don't plan to have children

74

FOR EVERYONE, AGAIN

FOR OFFICE USE ONLY. DO NOT WRITE IN THIS SPACE.

20. Do you plan to work in the Philadelphia city or suburbs after completing your education?

0 (1) yes 0 (2) no — 75

21. If it is very hard for you to find a job in the Philadelphia city or suburbs, would you move to another part of the country to look for work?

0 (1) yes 0 (2) no — 76

OFTEN YOU TAKE DIFFERENT KINDS OF COURSES OR HIGH SCHOOL PROGRAMS TO HELP YOU PREPARE FOR THE JOB THAT YOU WANT.

22. Have you taken or are you taking courses at the Swenson or Randolph skill centers?

0 (1) yes 0 (2) no — 77

23. Are you taking or do you plan to take any vocational or commercial courses?

0 (1) yes 0 (2) no — 78

24. How did you select the school you are in? (Select the most important answer and fill in the bubble next to it.)

0 (1) I was assigned to this school
0 (2) It offered a program that I wanted to take
0 (3) I had friends going here
0 (4) It is near where I live
0 (5) My parents wanted me to go here
0 (6) It's supposed to be a good school — 79

25. Did your school guidance counselor or career counselor help you decide to come to this school?

0 (1) yes 0 (2) no — 80

END FIRST CARD

BEGIN SECOND CARD

SYSTEM I.D. — 1-7

SEQUENCE — 8-11

CARD 2 — 12

26. Have you ever had a personal meeting with your school guidance or career counselor to talk about choosing a program or a school?

0 (1) yes 0 (2) no — 13

27. Do you think your school guidance or career counselor could help you choose a job or kind of work?

0 (1) yes 0 (2) no — 14

28. How much education do you think you will get? (Check only one answer.)

0 (1) I will not finish high school
0 (2) finish high school
0 (3) go to business, technical or nursing school
0 (4) go to college for a while
0 (5) go to college and graduate from college
0 (6) go to graduate school (for example, medical school, law school master's degree or doctorate) — 15

29. If you had good enough grades and enough money to keep going to school, how far would you like to go in school? (Check only one answer.)

0 (1) I would not finish high school
0 (2) I would graduate from high school
0 (3) I would go to a business, technical or nursing school
0 (4) I would go to college for a while
0 (5) I would graduate from college
0 (6) I would go to graduate school or professional school — 16

30. Do you think you know enough about how to prepare for the job you want?

0 (1) yes 0 (2) no — 17

31. Do you think you know enough about the kinds of jobs there are and how much they pay?

0 (1) yes 0 (2) no — 18

FOR OFFICE USE ONLY. DO NOT WRITE IN THIS SPACE.

32. If you wanted to know more about jobs and work, which of the following do you think would be most helpful? (Choose one answer only.)

0 (1) your parents (or parent)
0 (2) your teachers
0 (3) your school counselors
0 (4) some other adult
0 (5) your friends or brothers or sisters
0 (6) reading about it — 19

33. What is your father's occupation? _____

0 deceased 0 don't know — 20-22

34. How much regular schooling do you think your father has?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (9) don't know — 23

35. What is your mother's occupation? (You may answer housewife if your mother doesn't usually work outside her home.)

_____

0 deceased 0 don't know — 24-26

36. How much regular schooling do you think your mother has?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (9) don't know — 27

37. Sometimes it is not possible to get the job that you would most like. Realistically, what job or kind of job do you think you will have when you are 35 years old?

_____ — 28-30

FOR EACH OF THE FOLLOWING SENTENCES, FILL IN THE BUBBLE NEXT TO THE STATEMENT THAT COMES CLOSEST TO THE WAY YOU FEEL.

38. The most important part of work is the pleasure which comes from doing it.

0 (1) agree a lot
0 (2) agree a little
0 (3) disagree a little
0 (4) disagree a lot — 31

39. When I make plans I usually find that I can make them work.

0 (1) agree a lot
0 (2) agree a little
0 (3) disagree a little
0 (4) disagree a lot — 32

40. I would rather take a job I didn't like than receive money from the unemployment office.

0 (1) agree a lot
0 (2) agree a little
0 (3) disagree a little
0 (4) disagree a lot — 33

41. It's who you know and not what you know that's important in getting a job.

0 (1) agree a lot
0 (2) agree a little
0 (3) disagree a little
0 (4) disagree a lot — 34

42. I have a good idea of what kind of job I would enjoy doing as an adult.

0 (1) agree a lot
0 (2) agree a little
0 (3) disagree a little
0 (4) disagree a lot — 35

43. Whether or not a person is successful depends on hard work; luck has little or nothing to do with it.

0 (1) agree a lot
0 (2) agree a little
0 (3) disagree a little
0 (4) disagree a lot — 36

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WE'D LIKE YOUR OPINION ABOUT THE KIND OF WORK THAT PEOPLE IN CERTAIN JOBS USUALLY DO. FOR EACH OCCUPATION THERE ARE THREE DESCRIPTIONS OF JOB DUTIES. WILL YOU PLEASE TELL US WHICH DESCRIPTION YOU THINK FITS EACH JOB? READ ALL THE POSSIBLE ANSWERS BEFORE YOU DECIDE.

44. HOSPITAL ORDERLY

0 (1) helps take care of hospital patients
0 (2) orders food and other supplies for hospital kitchens
0 (3) works at hospital desk where patients check in
0 (9) don't know

37

45. How much regular schooling do you think hospital orderlies usually have?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (9) don't know

38

46. MACHINIST

0 (1) makes adjustments on automobile, airplane and tractor engines
0 (2) repairs electrical equipment
0 (3) sets up and operates metal lathes, shapers, grinders, buffers, etc.
0 (9) don't know

39

47. How much regular schooling do you think machinists usually have?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (9) don't know

40

48. KEYPUNCH OPERATOR

0 (1) operates a machine which sends telegrams
0 (2) operates a machine which punches holes in cards used in computers
0 (3) operates a cordless telephone switchboard and pushes switch keys to make telephone calls
0 (9) don't know

41

49. How much regular schooling do you think keypunch operators usually have?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (9) don't know

42

50. ECONOMIST

0 (1) prepares menus in a hospital, hotel or other such establishment
0 (2) does research on such matters as general business conditions, unemployment, etc.
0 (3) assists a chemist in developing chemical formulas
0 (9) don't know

43

51. How much regular schooling do you think economists usually have?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (9) don't know

44

52. DEPARTMENT STORE BUYER

0 (1) selects the items to be sold in a section of a department store
0 (2) checks on the courtesy of sales people by shopping at the store
0 (3) buys department stores that are about to go out of business
0 (9) don't know

45

53. How much regular schooling do you think department store buyers usually have?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (9) don't know

46

FOR OFFICE USE ONLY. DO NOT WRITE IN THIS SPACE.

54. SOCIAL WORKER

0 (1) works with a welfare agency and helps people with various types of problems they may have
0 (2) conducts research on life in primitive societies
0 (3) writes newspaper stories on marriages, engagements, births and similar events
0 (9) don't know

47

55. How much regular schooling do you think social workers usually have?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (9) don't know

48

56. DIETICIAN

0 (1) waits on tables in a restaurant
0 (2) suggests exercises for people who are overweight or sick
0 (3) plans menus for hospitals and schools
0 (9) don't know

49

57. How much regular schooling do you think dieticians usually have?

0 (1) less than a high school diploma
0 (2) a high school diploma
0 (3) some college
0 (4) college degree
0 (9) don't know

50

58. For students in vocational-education schools or in skill centers:

What cluster are you in?

0 (1) Name of cluster_____

0 (2) I'm not in a vocational-education school or skill center.

51-52